Report for the year 1974

Commissioner of Public Health

Western Australia

22501397388

REPORT of the
Commissioner of Public Health
for the year 1974

Presented to both Houses of Parliament

(1)—52616

WELLCOME INSTITUTE
LIBRARY

Coll.	welMOmec
Call	
No.	[illegible]
	[illegible]
	[illegible]
	[illegible]

The Honourable Norman Eric Baxter, M.L.C..
MINISTER FOR HEALTH

☆

Sir,

I have the honour to submit the Report of the Department of Public Health for the Year 1974

KENNETH JOHN MILLAR CARRUTHERS,
J.P., M.D., B.S.; M.R.C.S., L.R.C.P.; D.P.H.; F.A.C.M.A.; A.K.C.

Commissioner of Public Health.

CONTENTS

☆

Supplementary Reports—

Appendix

Page

I—Vital Statistics 14
II—Report by Dr. W. Laurie, Director, State Health Laboratory Services 15
III—Report by Dr. F. G. B. Edwards, Director, Tuberculosis Control Branch 38
IV—Report by Dr. R. Allen, Medical Officer-in-charge, Epidemiology and Special Services 50
V—Report by Dr. W. A. Newnham, Venereologist-in-Charge, Venereal Disease Control Branch, Special Treatment Clinic 55
VI—Report by Dr. A. Troup, Director, Community Health Services 61
VII—Report by Dr. R. W. Roberts, Director, Child Health Services 77
VIII—Report by Mr. W. M. Griffiths, Principal Pharmacist, Pharmaceutical Services Branch 89
IX—Report by Mr. J. L. Prichard, Principal Dental Officer, Dental Health Services 90
X—Report by Miss M. E. Beard, Principal Matron, Nursing Administration Section 96
XI—Report by Dr. F. Heyworth, Assistant Director, Division of Occupational Health 103
XII—Report by Mr. B. E. King, Physicist-in-Charge, Physics Branch, State X-Ray Laboratory 127
XIII—Report by Dr. J. F. Woolcott, Medical Officer-in-Charge, Library and Technical Information Service 132
XIV—Report by Mr. J. F. Slattery, Chief Health Surveyor, Health Surveying Branch 137
XV—Report by Mr. J. R. Edinger, Food and Nutrition Officer, Food and Nutrition Section 160
XVI—Report by Dr. M. M. Lugg, Health Statistician, Statistics Branch 163
XVII—Hospital In-Patient Statistics for 1974 167
XVIII—Leprosarium—Admissions and Discharges 190
XIX—Incidence and Mortality of Notifiable Diseases 191
XX—Stillbirth and Infant Mortality Rates 192
XXI—Stillbirth and Birth Rates 194
XXII—Maternal Mortality Statistics 195
XXIII—Revenue and Expenditure 196

Digitized by the Internet Archive
in 2019 with funding from
Wellcome Library

https://archive.org/details/b31480597

ANNUAL REPORT, 1974

☆

Hon. Minister for Health

Sir,

I have the honour to submit the Report of the Department of Public Health for the year 1974. This has fallen to my lot following the retirement of Dr. W. S. Davidson, who had been Commissioner of Public Health for 12 years and whose knowledge and skill will be greatly missed.

Significant changes are taking place in the " Health " scene, particularly in relation to the delivery of health care, but traditional " Public Health " activities remain, and must continue to be, fundamental to the well-being of Western Australians.

LEGISLATION

During the year various regulations made pursuant to the Health Act 1911–1973 were published or amended.

The major changes were:—

1. The metrication of regulations.
2. The Health (Construction Work) Regulations were published (*Government Gazette* No. 8, 21st January, 1974) specifying standards for temporary sanitary facilities required on construction sites.
3. The repeal of the Caravan and Camps Regulations and the publishing of the Caravan Parks and Camping Grounds Regulations (*Government Gazette* No. 15, 22nd February, 1974) specifying conditions related to the control of caravan parks and camping grounds.
4. The Meat Inspection and Branding Regulations were amended on 3 occasions. (*Government Gazette* No. 17, 1st March, 1974; *Government Gazette* No. 37, 3rd May, 1974; *Government Gazette* No. 95, 13th December, 1974) to give effect to changes in the scale of charges levied. Substantial increases were required to cover rising costs, mainly in salaries.
5. The School Dental Therapists Regulations were published in *Government Gazette* No. 22, 22nd March, 1974 specifying details of the course of instruction at the School of Dental Therapy conducted by the Department.
6. The Bacteriolytic Treatment of Sewage and Disposal of Effluent and Liquid Waste Regulations (1968) were revoked and new regulations published (*Government Gazette* No. 67, 3rd September, 1974).

Regulations made pursuant to other Acts administered by the Public Health Department were also amended. They were:

1. The rules made pursuant to the Dental Act were revoked and new rules published (*Government Gazette* No. 8, 25th January, 1974).
2. Appendix A to the Poisons Act Regulations was revoked and a new Appendix published (*Government Gazette* No. 25, 2nd April, 1974). The appendix specifies the substances included in the 8 schedules.

3. The Radioactive Substances Regulations were amended with respect to conditions of exemption from licensing (*Government Gazette* No. 48, 21st June, 1974). Various schedules relating to licensing details were also amended.

4. The Noise Abatement (Annoyance of Residents) Regulations were published (*Government Gazette* No. 48, 21st June, 1974). These regulations are for the purpose of establishing the level of noise above which annoyance is deemed to be caused.

5. The Optometrists Registration Board (Amendment) Rules were published with regard to qualifications necessary for registration and establishing a code of practice (*Government Gazette* No. 87, 1st November, 1974).

STATE HEALTH LABORATORIES

Dr. Laurie's report reflects the impact of changes in arrangements for the provision of pathology services to the Sir Charles Gairdner Hospital on the pattern of work carried out by the State Health Laboratory Service. Further steps have been taken to rationalise clinical services at the Perth Medical Centre resulting in a reduction in work load in some areas, particularly in relation to biochemistry and haematology where combined laboratories involving staff from the State Health Laboratory Service, the Hospital, and the University are being established. In the event, State Health Laboratory Service staff are still involved in these areas and must continue to be so in order to maintain their proper part in the provision of the necessary backup facilities for branch laboratories throughout the State. On the other hand there has been a considerable increase in the amount of work carried out in connection with radioisotopes and toxicology. A 24 hour on-call toxicology service was established during the year.

The report again emphasises the vital role of the Public Health Laboratories in connection with microbiological monitoring of food and water, and in the control of infectious diseases. The incidence of venereal disease is on the increase throughout the world, and Western Australia is no exception. Serological tests for venereal disease are now carried out daily, whereas formerly they were done on a twice weekly basis.

Current economic conditions have made it necessary to impose restrictions on the increase of staff and this has resulted in a greater strain on those working in some sections of the service. Only one new branch laboratory (Dampier) was opened in 1974, although others were planned. A new mobile laboratory was commissioned during the year, and will be available for specific purposes such as the conducting of special surveys, to provide temporary accommodation for a new branch laboratory, or to provide special pathology facilities in the face of either an epidemic or disaster.

Some improvements in accommodation have been made possible during the year but there is still a need to complete the north wing as soon as funds can be made available. It is to be hoped that this will not be delayed for too long. The original concept of the establishment of a suitably organised and titled public health institute at the Perth Medical Centre, which would provide not only clinical and forensic pathology services but also all those laboratory services required for the control of the environment, should not be discarded and need not await the completion of the building programme.

TUBERCULOSIS CONTROL

The incidence of tuberculosis continues its gradual decline and in 1974 the death rate from pulmonary forms reached the lowest yet recorded in Western Australia. In his report Dr. Edwards points out that the older male segment of the population still provides the main source of new cases, and that in the community as a whole the incidence of the disease remains much higher in those who were not born in Australia. This has been the pattern of events in recent years and is unlikely to change for some time to come.

The second year following the suspension of mass compulsory surveys has produced no significant change in the situation although the proportion of new cases diagnosed at a moderately advanced stage rose slightly. Trends will be watched carefully. In the meanwhile special attention, on a voluntary basis, is being paid to the high risk group of men of 45 years of age and over. During the year the incidence of bronchial carcinoma was found to be three times that for pulmonary tuberculosis in those examined in this particular group.

EPIDEMIOLOGY

Notifications of infections diseases during 1974 were generally less than in 1973. This was particularly so in respect of intestinal infections, there having been no major outbreak during the year.

A disturbing feature is the increasing apathy on the part of parents towards arranging for protection of their children by immunisation. There is a fairly widespread casual indifference amounting almost to negligence, and if this trend continues the risk of a recurrence of major outbreaks of those infectious diseases, which had become almost a thing of the past, is very real. It is important for health workers, including those connected with State and Local Government services to emphasise the importance of immunisation as a basic health tool.

Measles vaccine has been available in Australia since 1970 and a survey carried out by the Epidemiology Branch in the early part of 1974 supports the claim that the Schwarz vaccine is effective and has a low reaction rate. There had been an extensive outbreak of measles during the second half of 1973 and the survey showed that of 1 544 previously vaccinated children only 1·7 per cent. developed measles during that epidemic. The survey also showed that 8·8 per cent. of children vaccinated had a reaction between 5 and 14 days after injection, but in only 1 per cent. was this severe enough to cause parental anxiety and require medical supervision.

VENEREAL DISEASE

New notifications of venereal disease and attendances at the Department's Venereal Disease Clinics at Royal Perth and Fremantle Hospitals have again increased. Improved contact tracing facilities have resulted in a rise in the proportion of female patients being examined and, where necessary, treated.

Analysis of the figures for the last decade show that 56·4 per cent of cases notified are aged between 15 and 24 years.

In his report, Dr. Newnham draws attention to the very valuable contribution being made to the control of venereal disease by officers of the Department's Community Health Services throughout the State. He also emphasises the importance of health education in this field and draws attention to a very real need for further efforts to be made in this direction.

COMMUNITY HEALTH SERVICES

The Community Health Services Branch, established in 1972 to raise standards and improve health care delivery to the socio-economically depressed groups in the State, has formulated targets and aims. In her report, Dr. Ann Troup indicates that responsibility for achieving these objectives has been progressively de-centralised. Regional medical officers are being encouraged to develop their own priorities within the general target framework in order to relate specifically to local needs.

Nutrition, general hygiene and the control of infection remain major problems. However, energetic health education and immunisation programmes can confidently be expected to result in a progressive improvement in the general situation, and specifically to reduce the demand on hospital beds. Client demonstrations have been used extensively in health education, and have proved to be invaluable, not only as a highly effective teaching technique but also as a means of achieving familiarisation with health care systems and personnel.

Priority is given to the prevention of ill-health and the raising of standards of living. However, in the course of this work some aspects of treatment must be carried out, the degree to which this is done depending on the availability of other health care resources locally. Dr. Troup emphasises the value of adequate antenatal care and draws attention to the importance of routine V.D. screening tests in this context.

Medical Audit surveys designed to assess and document the health status of various population groups have continued. Dr. Troup has included in her report some material from Dr. Chowrryappah, the Branch's Regional Medical Officer in the Eastern Goldfields.

Experience during the year reinforced the conviction that liaison and co-operation with other health and welfare organisations is essential for success.

CHILD HEALTH SERVICES

In his report Dr. Roberts indicates that there has been further integration of the various sections of the Child Health Services and also increasing co-operation with the Education Department. A combined multi-disciplinary approach to learning problems is being made by officers of the Child Health Services Branch and of the Guidance and Special Education Branch of the Education Department using joint premises for this purpose. The highly successful scheme for the attachment of trained nurses at high schools is being extended, and a special orientation course for nurses entering this field of activity has been instituted.

During the year a pilot scheme was carried out in which nursing staff conducted the routine physical screening of school children, leaving the Medical Officer free to concentrate on those individuals who require more careful assessment in depth, including parent interview. This has proved to be a satisfactory approach and the method is now being implemented throughout the school's section.

There was no significant change in the number of attendances at Child Health Clinics in comparison with 1973, but Dr. Roberts draws attention to the problem of obtaining adequate staff to service Country Centres. The statistics show that once again there is a relatively high infant death rate in rural areas, particularly in the post-natal period. The proportion of ex-nuptial births remains at 12 per cent. and is a matter of concern in view of the fact that this results in the many problems associated with single parent families.

PHARMACEUTICAL SERVICES

Mr. Griffiths in his report draws attention to a new requirement in the packaging of analgesics, introduced with the object of preventing misuse by prolonged dosage.

DENTAL HEALTH SERVICE

The Branch has continued to provide clinic services to country areas and particularly to remote regions of the State. Dental therapy clinics have now been established in ten schools, and these also function as centres for surrounding schools. As the programme is developed it can be confidently anticipated that there will be a steady improvement in dental health amongst school children.

The first intake of dental therapy trainees commenced a two year course at the beginning of the year. At the end of 1974, the new Dental Therapy Training School in Como was nearing completion and planning was well advanced for a second year teaching clinic at Warwick.

NURSING SERVICES

The staffing situation has not been quite as critical as in recent years. Perhaps the most exciting development is that further progress was made towards the amalgamation of the Government School of Nursing and the Royal Perth Hospital School of Nursing which will result in the formation of the new Western Australian School of Nursing during 1975. New buildings are under construction close to Royal Perth Hospital. This new venture will be watched with great interest not only in Western Australia, but throughout the nation and indeed overseas.

OCCUPATIONAL HEALTH

The responsibilities of this Division include periodic surveys of the health of workers in various industries and consideration of their working conditions from the point of view of health, monitoring of air pollutants and educational activities. In the early part of the year a survey carried out on Collie coal miners showed, for the first time, radiological signs of the early stages of coal workers' pneumoconiosis. There was no evidence of actual disease but this finding underlines the importance of periodical dust sampling and careful attention to dust control measures. Much of the Division's activity is devoted to monitoring of dusty trades and the control of the use of pesticides.

The control of noise from both the community and industrial aspects is becoming increasingly important in this day and age. The Noise Abatement (Annoyance of Residents) Regulations of the Noise Abatement Act were gazetted on 21st June, 1974 and these allow for greater control of noise annoyance at community level. Regulations concerned with the control of noise in industry are being prepared. The Division has continued its Hearing Conservation service to industry and there is a welcome sign that the importance of ear protection is becoming more widely recognised and accepted.

Reports from the Clean Air Section indicate considerable activity during the year in connection with the monitoring of air pollutants. Regular sampling is done in the metropolitan area and in mining centres in the North-West and Eastern Goldfields. During 1974 observations showed a decrease in dust levels at Port Hedland suggesting that improved measures in connection with dust suppression on the part of the iron ore companies were having an effect. Continued vigilance on the part of the Clean Air Section and co-operation by industry and the public will do much to preserve the clean air we take for granted, and to avoid the serious problems that have beset so many advanced countries.

STATE X-RAY LABORATORY

The laboratory has continued its very necessary activities in connection with the monitoring of ionising and non-ionising radiation. The Division conducts a continuing education programme, in addition to its supervisory role, to ensure the maximum level of protection for both members of the public and persons employed in the vicinity of sources of radiation. In order to improve the control of sources of radiation, an administrative change has been introduced whereby separate licences are now issued for x-ray equipment and for the use of radioactive substances.

In the latter part of the year officers of the laboratory co-operated with the Royal Australian Navy in conducting a radiation survey at the Monte Bello Islands, the site of British nuclear tests in 1952 and 1956.

TECHNICAL INFORMATION SERVICE AND LIBRARY

Dr. Woolcott and his staff provide an information service designed to keep various sections of the Health and Medical Departments abreast of modern developments, in addition to running a library. It is of interest to note from his report that the resources of the Department's library are being increasingly used by interstate and overseas authorities. 1974 also saw the appointment of a Librarian to the Branch Library at the State Health Laboratories.

GENERAL SANITATION AND HYGIENE

If one was given the unenviable task of setting health activities in order of priority, the work of measuring and controlling specific environmental hazards relating to human health, which is undertaken by the Health Surveying Branch, would be high on the list. The demands of modern health technology bring with them the necessity for higher standards of education and training. The first three year full-time Associateship Course in Environmental Health being conducted at the West Australian Institute of Technology is now in its second year. During 1974 a five year part-time Diploma Course in Environmental Health was introduced by the Technical Education Division of the Education Department.

Co-operation with Health Departments of Local Authorities is fundamental to effective control of the environment, and this is maintained on an individual officer to officer basis and also by means of a number of special health liaison groups.

Specialist Health Surveyors assist the Commissioner of Public Health in connection with his responsibilities to protect human life in public buildings. Of a number of major projects completed during the year, the most notable would be in the Channel Seven Edgely Entertainment Centre. In its concern for public safety, the Department consults with officers of the West Australian Fire Brigades Board and of the Public Works Department. Supervision of conditions in respect of public swimming pools is a matter of considerable importance, and in co-operation with the National Safety Council the Department is responsible for the training and certification of swimming pool attendants and proprietors.

Caravan parks if not correctly managed are a potential source of health problems. The appropriate regulations and by-laws were reviewed during the previous year and a number of amendments and additions promulgated early in 1974. The revised legislation provides for tighter control in connection with a number of important matters.

New Pest Control premises were completed during the year and these incorporate a lecture room and Public Health Museum.

The disposal of sewerage and community wastes must always be matters in which the Health Department is involved. A " Report on Community Waste in Perth Metropolitan Region ", prepared by departmental officers on behalf of the Technical Advisory Sub-Committee of the Metropolitan Refuse Disposal Planning Committee was completed and copies distributed to affected Local Authorities and Government Departments for consideration, so that future action may be determined.

Meat Inspection and the general surveillance of the meat industry is an important health activity, and has been the responsibility of the Commissioner of Public Health for many years. The industry is primarily concerned with the production of meat for human consumption. The production and maintenance of standards in respect of items of food, which are so important to the maintenance of human health, is and must remain a responsibility of the Health Department in spite of contrary view expressed by some from time to time. The Department has always co-operated with the Department of Agriculture and the expertise of each is available where appropriate. Conditions of hygiene in abattoirs has been steadily improved over the years, although upgrading is still required in some areas.

Two particular events in 1974 underline the importance of constant vigilance to protect the public from food borne disease. An outbreak of food poisoning attributable to oysters was investigated. A method of purification of oysters has now been worked out in co-operation with the industry. During the year a number of people were affected by non-edible mushrooms, and subsequent remedial action by the Branch included an education programme on mushroom identification. Mr. Slattery's report indicates the breadth of his Branch's activities in connection with inspection of food stuffs and the control of hygiene in food premises.

Mr. Edinger reports of his section's activities in connection with the establishment and maintenance of food standards. Western Australia has participated in a Market Basket Survey being conducted by the National Health and Medical Research Council.

STATISTICS BRANCH

Dr. Marlene Lugg's report gives an outline of this Branch's increasingly important activities. In addition to monitoring morbidity trends and patterns of hospital practice the data produced by the Statistics Branch will assume a progressively greater role in the planning of both hospital and community based health care services.

Her report highlights the importance of accidents, poisoning and violence as a major cause of morbidity and mortality. It is salutary to note that accidental injury remains the leading reason for hospital admissions in males aged between 10 and 50 years.

There has been a further slight reduction in the length of stay in all types of hospitals, an important factor in the current cost escalation situation but one which must not be allowed to interfere with proper patient care. However, with steadily improving community health services it may be possible to work towards even shorter length of stay in hospital.

VITAL STATISTICS

The birth rate declined further in 1974 and in spite of an increase in the population the total number of births is following the trend which has been evident in the past three years.

The grave disparity between the infant mortality rate for the Perth Statistical Division and the rest of the State remains a matter of concern, and was even more marked in 1974 than it has been in recent years. The situation in the metropolitan area is improving but is far from satisfactory in the rest of the State. It is hoped that the further development of Community Health Services throughout the State will before long result in a similiar improvement in the country.

K. J. M. CARRUTHERS,
Commissioner of Public Health.

Appendix I

VITAL STATISTICS FOR WESTERN AUSTRALIA (*a*)

	1969	1970	1971	1972	1973	1974
Mean Population—						
Males	489 531	509 875	529 371	541 158	548 876	....
Females	466 129	484 326	502 243	515 350	523 804	1 097 600(*c*)
Births—						
Males	10 595	11 172	12 498	11 337	10 557	10 282
Females	10 159	10 446	11 741	10 840	9 953	9 925
Total	20 754	21 618	24 239	22 177	20 510	20 207
Birth rate per 1 000 of Mean Population	21·72	21·74	23·50	20·99	19·12	18·41(*d*)
Deaths—						
Males	4 313	4 392	4 536	4 317	4 586	4 550
Females	3 037	3 151	3 270	3 124	3 259	3 228
Total	7 350	7 543	7 806	7 441	7 845	7 778
Death rate per 1 000 of Mean Population	7·69	7·59	7·57	7·04	7·31	7·09(*d*)
Natural increase rate per 1 000 of Mean Population	14·03	14·16	15·93	13·95	11·81	11·33(*d*)
Infant Morality per 1 000 Live Births—						
Perth Statistical Division	18·3	18·1	17·0	13·1	16·0	13·1
Rest of State	27·8	27·0	23·2	20·6	25·1	22·2
Whole of State	21·8	21·2	19·1	15·7	19·2	16·2
Stillbirths (*b*)—						
Perth Statistical Division	165	184	194	173	173	194
Whole State	250	295	298	258	270	274
Stillbirth rate per 1 000 total births	11·90	13·46	12·15	11·50	12·99	13·38

(*a*) Includes events among the total population, including Aborigines.

(*b*) The term "stillbirth" for registration purposes refers to a child of at least 20 weeks gestation, not born alive.

(*c*) Persons. Males and Females separately are not yet available. Preliminary.

(*d*) Preliminary.

Appendix II

State Health Laboratory Services

Wm. Laurie, D.S.O., M.D., T.D.D., F.R.C.P.A.
Director, State Health Laboratory Services

I. ADMINISTRATION

General

As shown in the tables in the appendix, for the first time in many years there has been a fall in the amount of work done in the Central Laboratories of the Service: this is due to a handing-over to other laboratories some of the responsibility for the laboratory investigations in a neighbouring teaching hospital, for which we had provided laboratory services since the opening of the hospital 17 years ago. In some sections the separation is more apparent than real since the laboratory work of the hospital concerned is being carried on by the utilising of our staff and equipment although this is not reflected in the totals of work done.

It is with much regret that we part company after 17 years but the gap is already being made good by the continued increase in work from other sources and by enlargement of other hospitals for which the State Health Laboratory Services provide laboratories.

As shown in the tables in the appendix the country work continues to increase at a lesser rate than in previous years. This is possibly due to the reflection of the slowing of the economy as a whole.

Much difficulty has been encountered in providing a high standard of service both in the country areas and in the central laboratories. In spite of the decreased demand in the central laboratories, the staff wastage was such that difficulty was experienced in meeting all commitments due to an order forbidding recruitment: this does not take into account the steady growth of laboratory work in spite of the ban on staff recruitment.

The major problem in the Service is still one of organisation and methods. This is being eased by the use of telex, cameras, photocopying, computerisation and the like but there is still need for a complete review of the whole system of receipt of specimens, recording, and despatch of results. The present system has grown up willy-nilly over the years and the numbers of specimens now received daily makes this patchwork system most unsatisfactory.

Expansion of Services

During 1974 only one new laboratory was opened, at Dampier: this serves neighbouring areas including Wickham, Roebourne, Paraburdoo and Tom Price. Plans have been completed for the upgrading of the small laboratories at Collie and Augusta, and there is planning of much enlarged and new laboratories at three other country centres.

Common Services

It has long been recognised that certain sections of a laboratory service exist to serve more than one Division of the Service: well recognised examples of this are the specimen reception centre, the stores division, transport division, etc., but largely because of changes in techniques and great increases in costs of equipment and costs of staff, it is necessary more and more to place under central control some laboratory sections previously regarded as an essential part of one or other laboratory Division and controlled by that Division. This pooling of resources allows all laboratory Divisions access to the specialised services and indeed allows other users also to utilise such common services. One example of this is the Media Preparation Section: not only does this section produce a great variety and volume of media for the central laboratories but also supplies all the branch laboratories, one Commonwealth Laboratory, and the Department of Microbiology University of Western Australia. Among other such common services which will require to be more fully dealt with in successive annual reports are—

Library:

Now a very satisfactory arrangement. The Laboratory Services library has been taken over as an extension of the Central Library of the State Department of Health. This has greatly increased efficiency.

Animal Breeding and Animal Holding:

This necessarily serves more than one laboratory division and indeed possibly the most important work done in the last year was the continuing testing of effects of iron ore on the lungs of laboratory animals. Unlike findings overseas the continued inhalation of Western Australian iron ore in the form of fine dust does not produce any significant changes in the lungs. The serious effects reported from overseas undoubtedly represent the ill-effects of radio-active dust.

Plans are now well advanced for the establishment of a central animal breeding station to meet all requirements for laboratory animals in Western Australia.

Special Assignments Section:

This is a new section of the Laboratory Services, brought into being with responsibility for the control of new common service functions which are not yet big enough to act as separate sections. Responsibilities include:

1. *Computer Services*—In November 1974 a P.D.P. II computer was brought into operation and the automated equipment of the Biochemistry department was placed on-line. The results from the radio-isotopes section should soon also be placed on-line. A further memory unit (8K) was added to the computer.

In 1974 also a high-speed printer was installed in the computer room. This unit prints at the rate of 165 characters per second i.e. four times the speed of the conventional teletype: it is being used for the production of reports, work sheets and developmental work.

2. *Equipment Estimates*—Now an important section of the work of the Special Assignments section.

3. *Mobile Collection* (*Pensioner*) *Service*—This has proved a boon to individuals not in hospital but too ill to attend at any out-patient department for laboratory investigations. The number of specimens collected by the nursing sisters of the Service continues to increase, so much so that approval has been obtained for the acquisition of the second vehicle which was needed to permit the introduction of Phase II of the Mobile Collection Service programme. Unfortunatley restrictions on staff increases have prevented the recruitment of a second Public Health Service Sister for this work.

4. *Cryogenic Service*—During 1974 a liquid nitrogen refrigerator was installed to provide a much-needed service for the labelling, storage, and distribution of blood cells, serum, and tissues at temperatures as low as —196°C. This service is being used by the Blood Bank, Histopathology, Microbiology, Forensic Pathology and Surveys.

5. *Mobile Laboratory*—A new 6·7 metre mobile laboratory was completed and brought into use in 1974. It has been so designed that it can be used as a branch laboratory, for survey work, a special purpose laboratory (as in epidemics) and could be used in national disaster relief work either as a clinical unit or as a public health control laboratory.

6. *Surveys*—This is a most important section of the laboratory work. Fifteen separate health surveys were conducted during the year. Most of these were carried out at the request of the Community Health Services Division of the Public Health Department and a large population survey was carried out at the request of the Special Treatment clinic of the Public Health Department.

Work done on survey material is listed below.

STATISTICS 1974 SURVEYS

Number of patients		2 347
Blood Collections		1 892
Haematology Screen		2 219
Blood Film		939
Blood Group		1 870
SMA 12		1 004
Serum Iron		1 923
Blood Sugar		188
Carotene		43
Zinc		5
Folic Acid		2 050
Vitamin B12		2 010
Pap Smears		756
Serology :	A.R.T.	2 158
	F.T.A.'s	91
Swabs :	Micro	762
	Culture	762
	Sensitivity	43
Urine :	Micro	1
	Culture	1
	Sensitivity	....
	Uroeult	....
Urine :	Blood	728
	Bilirubin	728
	Ketones	1 788
	Glucose	728
	pH	728
Faeces :	Micro	282
	Culture	282
	Sensitivity	8
Skin Scrapings		6
Other :	Sputums	10
	Rose and Ball	3
	A.S.O.T.	3
	R.A. Latex F.T.	1
	C.R.P.	1
	L.F.T.	1
	Rubella Antibodies	1 040
	Vaginal Swabs for Chlamydia	600

Electron Microscopy

At present the State shares a common electron microscopy unit with the Pathology Department of the University of Western Australia. State staff are now being trained in the use of electron microscopes e.g. techniques of freeze etching etc, and it is hoped that soon the State will be able to function with a separate electron microscopy unit.

Tours and Conferences

In 1974 the Director was appointed to the Laboratory Accreditation Committee brought into being to establish a code for laboratory work at all levels.

Within 24 hours of the Darwin disaster it was possible to send a medical officer to Darwin by kindness of the R.A.A.F.: other staff were placed on standby but were not required.

During the year the Deputy Principal Technologist attended a meeting of the International Association of Medical Technologists in Paris, with several of the senior technologists of the staff, and several of the technologists later attended specialised laboratories in various parts of Europe.

A senior Microbiologist was appointed as a member of the National Health and Medical Research Council Food Microbiological Sub-Committee.

Perth, Western Australia is the most isolated city in the World, being separated from the next capital city (Adelaide) by over 1 700 miles. Tours and conferences therefore are of greater importance and value to the laboratory staff than would be the case in less isolated areas.

(2)—52616

II. STAFF

Although in some areas the work load decreased a little due to the loss of work from one teaching hospital, this loss in work was almost compensated for by the continuing increase in work from other sources. Further, in an organisation as large as this Service the annual wastage from resignation, retirement, and the like is substantial in amount, and the temporary reduction in work load was not sufficient to counterbalance the reduction in personnel which resulted from refusal of permission to recruit for normal wastage. This resulted in even greater strains on the staff, and greater overtime payments. The problem further was accentuated by the necessity to " pay Paul by robbing Peter " i.e. taking senior staff from specialised central laboratory work to serve in a general capacity in the country laboratories. This certainly caused inconvience and increased work in some central laboratory units, but in the central laboratories it is always possible to improvise and temporarily to obtain help from other laboratory sections whereas in isolated country laboratories this is not possible. Only experienced men are good enough to serve in country laboratories.

1. **Changes** (including Branch Laboratories)

Position	Recruited	Resigned
Medical Staff	1	2
Senior Technologists	....	1
Technologists	6	10
Nurses	8	4
Clerical Staff	7	6
Laboratory Assistants	7	4
Laboratory Attendants	33	25
Storeman	1	2
Security Officers	....	....

2. Sickness

The table below shows no significant changes from the trend which has become so obvious over the years, i.e. the less senior members of the Service showed a disproportionately high incidence of sickness. There would appear no doubt that lack of job satisfaction is a major factor in producing this.

SICKNESS ANALYSIS

	% of work force	% of working days lost
Medical Staff	2	Nil
Senior Technologists	13	2·9
Technologists	17	15·7
Nurses	4	2·7
Clerical Staff	15	14·3
Laboratory Assistants	10	11·00
Laboratory Attendants	35	51·5
Security Officers	3	1·9

The over-all sickness rate in 1974 was 1·8% compared with 1·71% in 1973: this seemingly small increase of 0·09% represents a substantial increase in working days lost with the total working time lost representing over sixty years of working time.

III. WORK DONE IN 1974

1. General

As has been reported above and as shown in Table 1A of the appendix the total work in the Central Laboratories in 1974 was less than that done in 1973 in spite of very substantial increase in work done in certain sections e.g. the output in 1974 from the radio-isotope section increased by 116%. The total work done in the central laboratories in 1974 was 8% less than that in 1973, but the fall in staff from retirement, resignations etc, was relatively greater: there was no easing of the strain on individuals working long hours.

Table 1B in the appendix shows the work done in the country laboratories in 1974 represented an 8·4% increase over the total country work in 1973. The increase varies from laboratory to laboratory with the newer laboratories generally showing a marked increase.

2. Microbiology

Due partly to staff shortages it has not yet been possible to introduce automated techniques or quality control.

The work done in the Microbiology division of the Central Laboratories is summarised in Tables IIA–IIF in the appendix.

Points of interest include the following—

Clinical Bacteriology

The work done in 1974 fell compared with 1973 but, this gives a wrong impression in that although being done elsewhere, the work was done by staff loaned from the State Health Laboratory Services at a time when we could not afford this cutting-down of staff.

Throughout 1974 a study was made into contamination occurring in dental equipment in use in the Health Department dental clinics. As a result there was a marked reduction in a potential hazard in school dentistry.

Throughout the year there was also bacteriological surveillance of the State Laundry Service. Other work included investigation of infections in four hospitals.

Waters Bacteriology (See Table IIB appendix)

The Salmonella investigations associated with effluents, natural waters and selected drinking waters are referred to later. The Waters Laboratory continued routine monitoring of drinking waters, ocean beaches, Swan River etc., in addition to samples associated with the Salmonella surveillance programme.

In 1974 investigations demonstrated the presence of faecal coliforms in bores and rain water tanks in a populated holiday resort. This also was the case in investigations carried out on aboriginal communities in the North-West of Western Australia.

In conjunction with the Metropolitan Water Board, coliform testing was extended to include a comparative survey incorporating membrane filter techniques on selected metropolitan drinking water supplies. The investigation is proceeding and the results so far on reticulated supplies show good accord. However, anomalies were occasionally found in un-chlorinated waters from which pseudomonads were isolated.

A comprehensive report is being prepared giving details of coliform levels and Salmonella isolations from natural waters throughout the metropolitan area. The level of faecal contamination in lakes and surface waters was highest in the neighbourhood of landfill sites.

ENTERIC DISEASES DIAGNOSTIC AND SURVEILLANCE LABORATORY

Work is summarised in Table IIIC in the appendix. There was a fall of work done in 1974 compared with that done in 1973.

Salmonella Investigations

During 1974 a total of 3 086 Salmonella isolations were made. These included 811 human cases, and isolations from foodstuffs, meat processing, abattoir effluents, sewerage domestic and wild animals and contaminated waters and soils. The human cases in 1973 numbered 1 243 which included over 500 cases from one large outbreak. The Salmonella infection rate in the North-West was 80 times higher than that found in Perth but with a relatively low incidence of Salmonella typhimurium in the North-West.

One case of typhoid fever was found during the year; the infection probably was acquired in India.

One new serotype " Salmonella jubilee " was isolated in 1974.

For the first time in Western Australia Vibrio parahaemolyticus was isolated from a human with acute gastro-enteritis. The infection probably was acquired in Hong Kong.

Shigella Investigations

559 Shigella cases were diagnosed in 1974, almost exactly the same figure as for 1973. Here also the infection was much more common in the North-West than in the Perth area.

Other enteric pathogens isolated in small numbers included Arizona and Edwardsiella infections.

Parasitology

Table A below summarises the parasites isolated in 1974. Giardiasis (771 cases) was found throughout the State: the seeming increase in infection rate is probably due to the large scale surveys now being carried out.

Hookworm infections are a common finding in the North-West, with a total of 199 cases.

ENTERIC DISEASES DIAGNOSTIC AND SURVEILLANCE UNIT

HUMAN INFECTIONS 1974

(Table A)

Bacterial Species	Total Cases	Bacterial Species	Total Cases
Salmonella	811	E. histolytica	1
Arizona	3	Giardia lamblia	771
Edwardsiella	9	Ancylostoma duodenale	199
Shigella	559	Strongyloides stercoralis	36
E. coli	238	Hymenolepis nana	392
		Trichuris trichiura	25
		Schistosoma haematobium	1
Total	1 620	Total	1 425

Schistosoma haematobium was identified from one individual who had lived previously in Egypt: this patient had worked for some time in the Ord River area.

One case of amoebic dysentery was identified: the infection probably had been acquired in the Middle East.

Foodstuffs

The Foods Laboratory continued regular monitoring of foodstuffs, meat processing centres and foodhandlers. Pet meats were again shown to be heavily infected and over 50% of samples submitted were infected with up to six serotypes per sample. Faecal coli counts were also recorded in excess of 10 000 per gm. The pet meats were from kangaroo, horse, goat, mutton, chicken, rabbit and donkey. The high contamination of pet meat poses a threat to meat workers, housewives and domestic pets.

Salmonella were isolated from a variety of foods including raw meats for hamburgers, chicken and chicken pieces, salami, frankfurts, sausage meat, scotch eggs, pastie mix and oysters. Effluent from meat processing centres, meat processing equipment, skinning machines, chicken wash water, and the hands of meat processing workers, also yielded epidemiologically significant serotypes.

During the year extensive investigations were undertaken of gastro enteritis associated with the consumption of oysters, but no bacteriological cause was proved.

During the year the Foods Laboratory began investigations into a wide range of " take away " foods, as part of the National Health and Medical Research Foods Microbiological Sub-committee survey. The study is expected to run for two years in order to cover possible seasonal and other variations.

Mycobacteria

Work done is shown in Table IID of the appendix.

This laboratory continued to provide a reference service for the identification of mycobacterial strains not only for the hospitals in Western Australia but also for the Western Australian Department of Agriculture and the Commonwealth Scientific and Industrial Research Organisation in Melbourne.

During 1974 serological differentiations of atypical mycobacterial strains became routine practice: other methods now being investigated include thinlayer chromatography and enzymatic studies.

Mycology

The work done in 1974 is shown in Table IIE. In spite of the senior mycologist being absent for some months on an extended study tour, the work increased by 19%.

Superficial mycoses comprised a major part of Mycology work during 1974 and accounted for an increase of 30% on the specimens received in 1973. Two infections with *Trichophyton violaceum* occurred during the year. This fungus is not endemic in W.A. and only 4 previous isolates had been made.

There was an outbreak of *Trichophyton rubrum* in two wards of an old people's home.

Subcutaneous Mycoses are rare but in 1974 there were two cases of Sporotrichosis.

Deep seated and systemic infections continued to be rare in W.A. During the year there was one case of pulmonary Cryptococcosis and one case of Actinomycosis.

Few necropsy specimens were received but three that were sent in for mycological examination yielded heavy growth of *Candida albicans* and one of these in addition grew an Aspergillus species.

Allergic Aspergillosis appears to be relatively frequent in W.A., particularly during the winter months.

The overall number of yeasts isolated continued to increase and this is in all probability due to the continued increase of antibiotics in the community.

Mycoplasma

Mycoplasma pneumoniae was isolated six times from five patients during the year. Altogether 78 specimens (sputum, throat swab and, in the case of children, perinasal aspirate and cough swab) from 64 patients were examined for the organism. The specimens were spread fairly evenly through the year with a slight excess in late winter and early spring but the mycoplasma isolations were made in January (2), September (1), October (2), and December (1). All previous isolations in this laboratory were made in the period August to December: those in January this year may be a reflection of a late season of respiratory illness. Taken overall the isolations suggest that *Mycoplasma pneumonia* infections in this State are more prevalent, or possibly assume greater medical importance, during the Winter to mid-Summer period.

There were few requests (17) for mycoplasma investigations on urogenital specimens but the pattern of isolations remained unchanged from the previous years in that Mycoplasmas (usually only T-strain) were isolated from only two per cent of the males but from all five females and usually both T-strains and *Mycoplasma hominis* were found in the women. An investigation has begun to compare conventional methods with tissue culture for isolating the urogenital Mycoplasmas.

There were few a requests to look for L-phase organisms in urine but none were found although they are sometimes encountered in the course of Mycoplasma investigations.

Virology

During the year work in venereal diseases concentrated on assessing the significance of chlamydia, herpesvirus type 2 and Mycoplasmas in the aetiology of non-specific urethritis and a survey was completed on the viral flora of the genital trace of promiscuous women as compared with women volunteers drawn from a community health study. A report is in preparation.

Work was continued on the epidemiological aspects of glandular fever in relation to Epstein-Barr virus. This work involved the investigation of serum antibody levels in population groups by immunofluorescence using an antigen prepared in the laboratory. A number of papers were published as a result of this work.

In the Rubella field continuous efforts to achieve a rapid diagnosis of recent infection in early pregnancy reached a successful conclusion and 1975 will see the application of a technique, based on ultra-centrifugation coming into routine practice, thus circumventing the current expensive and laborious extraction of the IgM moiety of serum.

In the serum hepatitis field the addition of radioisotope immunological assay of Hb Australian Antigen to the armamentarium of diagnostic tests has enabled the laboratory to consolidate its position as a reference centre for Western Australia.

The use of the electron microscope as a diagnostic tool during 1974 was extended to embrace the recognition of rotavirus in the faeces of infants and young children suffering from acute and often severe gastro enteritis. Undoubtedly this virus will be recognised as an extremely important cause of this distressing lesion and may well account for the majority of such infections previously yielding negative findings on bacteriological and virological investigation. It is essential that epidemiological studies be pursued in this new area. Rotavirus (synonyms orbivirus, duovirus) which cannot yet be grown in tissue culture has close resemblance to the orbivirus group of double stranded RNA viruses associated with gastro enteritis of cattle, pigs, and new born mice.

A study has been undertaken into Ross River Fever in Western Australia, first recognised in 1971. The results are being prepared for publication. The condition is characterised by high fever, severe headache and a macculopapular rash over the whole body and associated with poly-arthralgia which is often severe and occasionally of long duration. The disease is caused by Group A arbovirus, Ross River Virus and the findings of the study indicate that it is endemic in the State, from the tropics to the south coast.

The year was not noteworthy for any major epidemic either due to respiratory or other viruses. Those influenza A infections from which specimens were received, indicated no antigenic change from the Port Chalmers strain of the previous year. An outbreak of influenza B occurred in the latter part of the year in an Agricultural School in a country town. The strain has shown considerable antigenic drift from previous B strains and is being studied at the W.H.O. Influenza Central Laboratory.

3. Biochemistry

The work done in the Biochemistry Department in 1974 is shown in Table III of the appendix. This shows on paper a marked decrease in work done as compared with 1973 but here again the picture is misleading since much of the work of the neighbouring large teaching hospital is still carried out by staff of the State Health Laboratory Services with equipment of the State Health Laboratory Service but is credited to other laboratory services.

State Health	*University*
Head of Division (Dr. Blackman)	Professor D. H. Curnow
Biochemist	4 laboratory technologists
Technologist/Charge	3 laboratory assistants
2 laboratory technologists (Senior)	1 laboratory attendant
9 laboratory technologists	1 Secretary/typist
1 laboratory assistant	
2 clerical assistants	
4 laboratory attendants	

Although there has been no increase in the State Health component, the staff attached to the University has helped to alleviate pressures due to the increased work load.

Over the year the work load has increased approximately 9·4% per quarter. As "tests" are a poor indicator, statistics have been worked out on number of patient requests. All work submitted to this department from the Special Projects Section are included in this report. Specimens arrive from two main sources, viz. Perth Medical Centre and local and country doctors. Additional to the 150 new beds at the local teaching hospital, 1975/80 will see an increase of 500 beds.

Total work is divided as follows:

Teaching Hospital	66%
State Health Laboratories	34%

Approximately 8% of the total specimens received were separated in the Biochemistry Department for the Radio-Isotope section. A large increase in the total amount of State Health work is due to the fact that all results are telexed to country doctors and phoned to local doctors.

Equipment

No major equipment was purchased during the year. Due to the current and expected workload the purchase of a Technicon SMAC system costing approximately $180 000 is under consideration, the present SMA 12/30 being seven years old now. This new system will test 20 parameters on a single sample at a speed of 150 per hour.

New Tests

These include:

1. y Glutamyl Transpeptidase
2. Urine Hydroxyproline
3. Red Cell transketolase
4. Aldosterone
5. Renin
6. Plasma Zinc
7. Urinary ALA
8. Metadrenaline and Catecholamines
9. Plasma and Urine 5HT

3B. Toxicology

The work of the Toxicology Department is summarised in Table IIIB of the Appendix.

During 1974 it became obvious that the Toxicology Department had become a Common Service Facility serving not only more than one laboratory division but also serving other Government Departments and hospitals: accordingly it was given status in its own right.

The number of samples analysed by this section increased significantly during the year. The Public Health and Forensic samples more than tripled those requested in 1973. The variety of work has also increased and now covers the fields of food analyses, drugs, toxicology, industrial hygiene, environmental pollutants and forensic science.

Throughout the year new methodology and quality control studies were carried out on a number of new projects, e.g. Water analysis, Narcotic screening for the Alcohol and Drug Authority, heavy metals in foods, drug extraction properties and the development of reliable accurate methods for forensic analysis.

During the year tenders were placed for the purchase of a Mass Spectrometer with computer attachment, a gas Chromatographic system and an Infra-Red Spectrophotometer. The acquisition of the Mass Spectrometer will be of great benefit to the section because of its ability to give precise and accurate identification as well as sub-nanogram quantitation on a number of drugs and environmental contaminants. This will make the Toxicology section one of the best-equipped analytical laboratories in Australia.

The section now provides a 24 hour " on call " service, which has been used by a number of hospitals (such as Fremantle Hospital, Princess Margaret Hospital and Sir Charles Gairdner Hospital) when they require urgent toxiological analyses. With Sir Charles Gairdner Hospital becoming a casualty centre in the near future this service should prove invaluable.

The senior staff of the section gave a total of six lectures to various establishments such as the Australian Association of Clinical Biochemists, Alcohol and Drug Authority, Australian Institute of Medical Technologists and Clinical Chemistry section of the State Health Laboratories throughout 1974.

The section consisted of four chemists and one laboratory assistant. However, in December one of the more experienced officers resigned. The section is now working to capacity and additional staff will be required to overcome the work load anticipated for the following year. The following is a report of the work undertaken by the Toxicology section during the months October, November and December (last quarter), and the totals for 1974.

Sections 1, 2 and 3 contain numbers of analyses requested and include comparative figures from the third quarter 1974 and the total for 1973.

1. *Clinical*

Requests	Total 1974	Total 1973
Dilantin	559	353
Cholinesterase	193	330
Barbiturates	207	170
Salicylates	245	208
Alcohols	66	75
Bromides	56	123
Organo Chlorine pesticides	35	63
Narcotic Screens	31	35
Drug Screen	51	38
Anti depressant drugs	45	....
Theophylline	62	....
Anti-epileptic drugs	30	....
Miscellaneous	86	64
Total	1 666	1 459

2. *Public Health*

Requests	Total 1974	Total 1973
Mercury	171	109
Pesticides	33	29
P.C.B.	7	37
Benz a pyrenc	54	33
Miscellaneous tests	16	0
Cadmium	22	0
Zinc	22	0
Fats in meats	15	0
Water Analysis (Midland Abattoirs)	1 070	0
Total	1 410	208

3. *Forensic*

Requests	Total 1974	Total 1973
Alcohols	441	100
Single drug assays	70	41
Carbon monoxide	31	18
Complete drug scans	74	6
Total	616	165

4. Haematology

The work done in 1974 is shown in table IV of the appendix. The Haematology Department suffered most severely through the loss of the work from the local teaching hospital. Its output in 1974 was less than half of the work done in 1973.

The only points of interest in the 1974 work are:

Coagulation

A new method has been introduced for the transportation of specimens from patients suspected of having coagulation defects. Some coagulation factors are heat-labile and considerable activity is lost whilst the specimens are being transported over long distances during hot weather. This applies even in special containers cooled with ice bricks. Accordingly citrated plasma samples and serum were transported embedded in dry ice in a thermos flask. Samples were thus frozen solid throughout the journey so that very little, if any at all, of the coagulation factors were lost. Previous experiments had shown that dry ice packed in a flask retained its effectiveness for between 3-4 days even at room temperatures.

Blood Bank

Cell preservation in liquid nitrogen is continuing of all blood received from aboriginal subjects involved in various surveys. Extra storage facilities will be eventually required.

This laboratory was able to verify on request that blood submitted from a patient was in fact Rhesus Null, somewhat of a rarity. The sample was submitted from the Commonwealth Laboratories at Kalgoorlie.

Blood Collection

An adequate service was maintained throughout the year. The blood collections made by " Mobile " collection sisters are increasing, both in numbers, and in distance travelled to do so.

5. Radio-isotopes Section

The work of the section is summarised in Table V of the appendix which shows that there has been an increase of 116% in work done in 1974 compared with the output in 1973.

This is one other example of a special section serving more than one laboratory division in that both the biochemistry division and the haematology department are making increasing use of the isotopes section.

In September 1974 the Radio-Isotopes unit moved into its new laboratory. This brought about an increased working area and the larger laboratory also provided a more pleasant working atmosphere, resulting in greater working efficiency.

Work Load

The overall increase of 116% in work load over the previous year was brought about by two factors. Firstly a general increase of approximately 50% in current tests, and secondly, the introduction of new tests, e.g. thyroid-stimulating hormone assays, R.I.A. Australian antigen screening, oestriol assays, and tri-iodo-thyronine determinations. The overall source of specimen remained approximately the same, that is, 65% branch laboratories and general practitioners, and 35% from the local hospital.

Staff

The much increased work load has put much pressure on the already inadequate staff which had not been increased to handle the expanding workload. It will be essential within the next twelve months to increase the trained staff if the high quality of work is to be maintained.

Equipment

At present, all assay techniques are performed manually, however, if the present rate of increase persists automation will be essential to maintain the 24 hour through-put. Present radiation detection facilities are proving to be inadequate for the workload; a new automatic Gamma counter on tender should rectify this situation.

6. Histopathology, Cytology, and Morbid Anatomy

For the first time in many years the Histopathology Department Laboratories have been located in the one building; this has resulted in a better co-ordination of the work and staff. Over the year there has once again been a general overall increase in the work as illustrated in Tables VIA and VIB of the appendix.

Clinical Histopathology Section

The work in this section has continued to be almost entirely of a routine nature, with an increase of 8·7% in the number of cases being received from Country and Metropolitan centres.

The number of special stains, and other investigations has been kept at a minimum due to the pressure of work on the pathologists and the inability to employ more staff.

Frozen sections at Branch Laboratories was mostly limited to one Perth hospital, although a few were done at Pinjarra and Narrogin. Other centres have had urgent biopsy material flown to Perth for rapid processing. A mobile van has now been supplied and as soon as the cryostat has been provided and fitted it is anticipated that this service will be increased.

Forensic Histopathology Section

The number of necropsies performed during the year has shown an increase of 9% and the volume of work referred to the Laboratory has shown an even greater increase—38%.

Cardiology investigations have continued and the number of special stains has increased.

Work on the identification of diatoms in tissues from drowning cases has had to be minimised due to the lack of staff and the lack of adequate facilities for these investigations.

The number of macro sections has increased, due to routine processing of lungs of all cot deaths and from patients with terminating lung disorders.

Cytology

The cytology for the Perth Medical Centre was transferred to the newly formed University Cytology section in January. Work from this centre represented about 30% of the work received in 1973. However with an increase of specimens from the country branches and other centres has more than compensated for this loss.

As usual staff changes have occurred in this section. Two technologists undergoing training in screening, transferred to country centres and two qualified cytology screeners resigned. These were replaced by one trained cytology screener and one laboratory assistant who has now completed her first year of training. Lack of parity in conditions of service means a steady drain of screening staff to other institutions of a similar nature.

During the year this section organised and conducted a series of monthly seminars to which were invited representatives from outside organisations involved in Cytology.

Morbid Anatomy

Post-mortem examinations at the new City Mortuary began in February 1974. As from April 18th 1974, the new City Mortuary provided a continuous service for admissions. This was made possible by operating an " On Call " roster system with the mortuary staff.

The co-operation of the Perth Medical Centre's Assessment Area, the St. John's Ambulance Association and the Police has greatly assisted in the smooth functioning of the City Mortuary.

Lectures and demonstrations to Police Cadets and to Medical Students have been carried out in the Demonstration Theatre. There has been during the year, an increasing demand for country necropsies and a weekend " On Call " service has been made to provide a continuous service by mortuary staff. Special investigations have been carried out on cot deaths, and a 24 hour service is being provided by pathologists and mortuary staff for these cases.

The new City Mortuary now serves the whole of the Metropolitan area, Fremantle and other areas from Pinjarra in the south to Gin Gin in the North.

The Police Department has three Police Officers based at this centre for investigations of sudden death.

Equipment

Histopathology has been provided with two extra Elliott duel-head tissue processors which have been of great help in coping with the increased volume of tissues, also a Dodge 30cwt van which is being fitted as a mobile unit for frozen sections.

Cytology has received a Shandon Elliott Varistain 23 Automatic staining machine for the Papanicolaou staining method.

7. Serology

The work of the Serology division has increased so much in amount and complexity that it soon will have to be formed into a Division of Immunology serving more than one other division of the laboratory services e.g. " Clinical Serology, " " Forensic Serology, " " Cytogenetics " etc.

The work done in 1974 is summarised in Table VII of the appendix.

Points of interest include:

Cytogenetics Unit

Four hundred and forty new patients were referred to the cytogenetics unit during this twelve months period. The number of abnormal and variant karyotypes was sixty four. Twenty patients previously investigated were recalled for further studies, using the new Quinacrine Mustard technique.

All chromosome results are now coded on punch cards suitable for computerisation. Using methods laid down in the Statistical Package for the Social Sciences, an individual programme entitled " Cytofile " has been designed at the Western Australian Regional Computing Centre so that statistical analysis of data held by the Unit can be readily performed. A further programme entitled " Amnio file " has been designed and all results of diagnostic amniocentesis are additionally coded on that file.

The cytogenetics unit is co-operating in the establishment of a Regional National and International Registry of Abnormal Karyotypes.

Treponemal Serology

Apart from the steady increase in blood specimens received for this work, there are several aspects worthy of note.

(a) The Wassermann Reaction tests are fully now automated using the Analmatic system.

(b) The Venereal Disease Reference Laboratory (VDRL) screening tests are automated using an auto-analyser. All those sera found reactive or giving doubtful reactions by this method are then tested, and titrated where necessary, using the VDRL slide test.

(c) The use of the Reiter Protein Complement Fixation test has been discontinued, perhaps permanently, because of the difficulty of obtaining a satisfactory antigen and in keeping with world trends.

(d) Extensive use is made of the Fluorescent Treponemal Antibody Absorption Test, (a total of 15 658 tests for the year) and plans are under way for the introduction of Treponemal Pallidium Haemagglutination test as a supportive test, this being like the FTA a specific test for treponemal disease, as is the Fluorescent Treponemal Antibody test mentioned above.

(e) All V.D. serology tests are performed on a daily basis now, instead of twice weekly as previously, and results are reported manually instead of by Automatic Data Processing.

Forensic Serology

Overall, the work of this branch of Serology increased by 14·4% in 1974 (unfortunately, without a compensating increase in staff). This greater volume of work is due in part to Western Australia's increased population and increased crime; it appears to be due also to better use of the facilities we offer in the detection of crime—in the country as well as in the metropolitan area. There have been increased numbers of requests for laboratory staff to attend at crime scenes, to examine and collect material. In 1974 court appearances by laboratory serology staff increased to 52 in metropolitan Perth and 18 in country centres.

Recently acquired apparatus for the automated detection of low levels of antibodies in dried blood stains is proving satisfactory, especially regarding the Rhesus system. We also have new electrophoresis equipment suitable for starch, acrylamide and gradient polyacrylamide gel techniques—these have been used experimentally to date to identify haptoglobin, haemoglobin and isoenzyme types within several systems in blood stains. Subject to further satisfactory results being obtained, and the availability of staff, these systems will be used in routine crime investigation. This new equipment might also be used to identify the properties of seminal stains.

Survey Work: (Variously whole communities and aboriginal groups)

This has been confined to treponemal investigations in 1974, with a total of 4 406 tests having been done, viz 2 484 Venereal Disease Reference Laboratory tests, 135 quantitative VDRL tests and 1 787 Fluorescent Treponemal Antibody Absorption tests.

Teaching

The cytogenetics unit was extensively involved in teaching and demonstrating during the year. Lunchtime lectures were given at King Edward Memorial Hospital and Princess Margaret Hospital on cytogenetic aspects of prenatal diagnosis. Various groups visited the laboratory and were given lectures and demonstrations of the work that is undertaken by this unit. The groups included:

(a) Post-graduate Paediatric Registrars from Princess Margaret Hospital.
(b) School Medical Officers and School Nurses.
(c) Post-graduate Paediatric Nurses.
(d) Post-graduate Obstetric Nurses.
(e) Fifth Year Medical Students.
(f) Post-graduate Teachers, doing a course in special education.
(g) Fifth Year secondary school biology students from a local High School.

Requests have been made that these lectures and demonstrations should continue on a regular basis throughout 1975.

The Forensic Serology laboratory has also been involved with teaching. Officers have given lectures and demonstrations to Trainee Police Officers.

Students

During the year a post-graduate scientist from Indonesia was attached to Serology for three weeks and was given instruction in all branches of the laboratory. A technologist from Royal Perth Hospital came to the cytogenetics unit briefly to learn about fluorescent staining of chromosomes.

Visitors

Professor Bruce Holloway, Professor of Department of Genetics, Monash University, Victoria, called at this laboratory during a week-long visit to this State.

IV. BRANCH LABORATORIES

Table 1B of the appendix lists the work done in the country laboratories in 1974.

The overall increase in work done in 1974 compared with 1973 is 8·4% but there is much variation among individual laboratories with some showing a marked increase in work and others showing a fall. This is explained to some extent by changes in medical practitioners, who vary in their use of laboratory tests.

A review of the individual reports from country laboratories highlights the problems facing the workers in so many of the isolated branch laboratories: in numerous instances there is only-one qualified technologist on the staff, consequently he or she must be available 24 hours a day every day of the week: housing is often most unsatisfactory and ill-suited to the local climate conditions with the same design of house found from the most severe tropical areas to the cold-weather areas on the south-coast: amenities are few: as said the climate may be trying: there is a feeling of being isolated and forgotten by the staff at the centre: and there is a feeling that promotion in the central laboratories is often given to staff who have served only short periods in the country. In an attempt to overcome these feelings the branch laboratories are visited by senior staff as frequently as possible, suitable housing and transport are being provided, the qualified laboratory staff in each of the busier laboratories is increased when permission is given, and the branch workers are brought back to the central laboratories for refresher courses each year.

It is again necessary to stress that the State and the individual patient owe much to the staff of the branch laboratories.

V. RESEARCH

Lack of time and lack of staff still limit the amount of research which is possible. However, as pointed out repeatedly by the World Health Organisation no laboratory can remain viable without some element of research. It has been possible to carry out some investigational and developmental types of research and a few workers have maintained long-term research projects by working out of duty hours. This applies especially in the research projects on cot deaths and on heart disease.

VI. PUBLICATIONS

Among papers published in 1974 by members of the service are the following:—

1. " A familial 10/13 Translocation: Partial Trisomy C in an infant Associated with Familial 10/13 Translocation " by M. T. Mulcahy and J. Jenkyn. Clinical Genetics, Volume 6, No. 5, 1974.
2. " A Computerised Chromosome Registry " by Marie T. Mulcahy.
3. " Sudden Death Infancy Syndrome in W.A. " by Dr. J. M. N. Hilton & Dr. K. J. Turner.
4. " IgE Antibodies to Dermatophagules Pteronyssinus (House Dust Mite) Aspergillus Fumigatis showing B-Lapto Globulin in the Sudden Death in Infancy Syndrome " : by Dr. J. M. N. Hilton, B. J. Baldo, and Dr. K. J. Turner.

VII. TEACHING

The majority of senior members of the staff have greater or lesser responsibilities for teaching of categories of allied professional personnel, (nurses, technologists, physiotherapists, police, and medical students.)

VIII. ACKNOWLEDGEMENT

With the completion of part of our new building programme the central laboratories provide improved working conditions although still overcrowded, and it would appear that the future of the staff will be protected. This has led to a happier atmosphere and improved morale. I have already made reference to the good work done in the country laboratories as is shown by the quality control results carried out by Burroughs Wellcome and I would now like also to thank the workers in the central laboratories who have also given of their best during the year.

It is necessary, and a pleasure, to thank the colleagues in Australia and overseas who have helped us on request. They are so many that we must apologise for not quoting them individually but would mention especially the consistent help given by the Whitechapel VD Reference Laboratory, and the Anatomy Department of the University of Western Australia.

Table IA

STATE HEALTH CENTRAL LABORATORIES—SUMMARY OF TESTS DONE 1974

	State	Common-wealth	S.C.G.H.	Others	1974 Total	1973 Total	1974 Increase
							%
MICROBIOLOGY—							
A. Clinical Bacteriology	69 691	342	44	4 552	74 629	78 922	....
B. Waters and Sewerage	16 183	....	....	....	16 183	14 945	8·3
C. Enteric Diseases	27 248	298	....	....	27 546	31 250	....
D. Mycobacteria	....	22 797	....	....	22 797	23 285	....
E. Mycology	32 480	818	3 091	....	36 389	30 529	19·2
F. Virology	267 181	6 128	16 974	....	290 283	251 348	15·5
BIOCHEMISTRY	49 993	5 560	239 116	54 036	348 705	464 246	....
TOXICOLOGY	3 071	71	340	210	3 692	1 959	88·5
RADIOISOTOPE	20 373	10 135	18 571	14 205	63 284	29 205	116·7
HAEMATOLOGY	50 991	4 526	14 973	26 149	96 639	226 274	....
SEROLOGY	141 777	3 869	7 821	3 298	156 765	142 962	9·7
A. Histopathology and Morbid Anatomy	38 207	1 914	37	8 678	48 836	42 555	14·8
B. Cytology	6 137	3 652	1 070	12 679	23 538	23 048	2·1
Total	723 332	60 110	302 037	123 807	1 209 286	1 360 528	....

Table IB

STATE HEALTH LABORATORIES—SUMMARY OF TESTS DONE IN COUNTRY LABORATORIES 1974

Town	Total 1974	Total 1973	Increase 1974
			%
Albany	31 931	34 953	....
Broome	13 241	13 621	....
Bunbury	47 843	47 163	1·4
Busselton	18 182	18 749	....
Carnarvon	26 754	22 908	16·8
Collie	6 737	6 415	5
Derby	31 103	31 568	....
Esperance	11 320	12 313	....
Geraldton	53 633	47 958	11·8
Kununurra	1 001	984	1·7
Manjimup	18 226	16 900	7·8
Margaret River/Augusta	4 366	4 196	4·1
Merredin	25 192	25 798	....
Narrogin	40 397	41 309	....
Northam	23 656	26 323	....
Pinjarra	19 490	11 574	68·4
Port Hedland	42 876	30 384	41·1
Wyndham	22 000	23 054	....
Roebourne	6 103	926	Closed June 1974
Dampier	8 094	....	Opened July 1974
Total	452 145	417 096	8·4

Table IIA

CLINICAL BACTERIOLOGY—TESTS DONE 1974

	Source				1974 Total	1973 Total	1974 Increase
	State	Common-wealth	S.C.G.H.	Others			
							%
Animal Inoculations	....	....	....	....	....	24	....
Blood Specimens	38	....	....	3	41	668	....
C.S.F. Specimens	23	....	....	12	35	534	....
Faeces	....	....	....	....	....	24	....
Foodstuffs	2 049	....	....	....	2 049	1 820	12·6
Sensitivity Tests	2 227	37	....	742	3 006	5 981	....
Serous Effusions	40	4	....	40	84	290	....
Sputum	281	20	....	234	535	3 366	....
Swabs all Sources	1 205	66	....	916	2 187	5 930	....
Urine Examinations	2 977	127	....	2 500	5 604	19 712	....
Urogenital specimens including urine for V.D.	59 509	39	....	....	59 548	38 424	55
Water	331	....	....	....	331	400	....
Others	1 011	49	44	105	1 209	1 749	....
Total	69 691	342	44	4 552	74 629	78 922	....

Table IIB

WATER AND SEWERAGE SURVEYS—WORK DONE 1974

	1974 Total	1973 Total	1974 Increase
			%
Water—			
Drinking	9 039	8 897	1·6
River, Ocean	3 486	3 379	3·2
Sewerage	3 658	2 669	37·1
Total	16 183	14 945	8·3

Table IIC

ENTERIC DISEASE LABORATORY—TESTS DONE 1974

	Source			1974 Total	1973 Total	1974 Increase
	State	Common-wealth	S.C.G.H.			
						%
Antigen and Animal inoculation	....	....	....	....	1 934	....
Faeces specimens	16 045	178	....	16 223	18 214	....
Foodstuff	2 081	....	....	2 081	2 714	....
Sensitivities	2 526	57	....	2 583	3 243	....
Others	6 596	63	....	6 659	5 145	29·4
Total	27 248	298	....	27 546	31 250	....

Table IID

MYCOBACTERIA SECTION—EXAMINATIONS IN 1974

	1974 Total	1973 Total	1974 Increase
			%
Sputum	14 293	14 419	....
Gastric contents	350	502	....
Laryngeal swabs	....	....	....
Pleural fluids	297	276	7·6
Bronchial lavage	3	2	50·0
Cerebral spinal fluid	87	141	....
Urine	2 859	2 352	21·6
Miscellaneous	2 988	2 809	6·4
Confirmation tests	986	1 171	....
Sensitivities	388	532	....
Virulence tests	322	513	....
I.N.A.H. level	189	542	....
Smears for M. leprae	35	26	34·6
Total	22 797	23 285	....

Table IIE

MYCOLOGY—WORK DONE 1974

	Source			1974 Total	1973 Total	1974 Increase
	State	Commonwealth	S.C.G.H.			
						%
Skin, Hair, Nails	11 996	735	292	13 023	10 070	29·3
Sputum, CSF, Biopsy, P.M., Drainage and Wound Swabs	714	....	1 918	2 632	2 034	29.4
Swabs: Cervical, Vaginal, Throat, Mouth, Ear	13 899	59	291	14 249	13 262	7·4
Identification—Candida and Trichophyton	1 851	7	210	2 068	1 578	31·1
Miscellaneous	4 020	17	380	4 417	3 585	23·2
Total	32 480	818	3 091	36 389	30 529	19·2

Table IIF

VIROLOGY SECTION—TESTS DONE 1974

	Source			1974 Total	1973 Total	1974 Increase
	State	Commonwealth	S.C.G.H.			
						%
Preparation of Inocula	27 305	1 002	1 069	29 376	20 783	41·3
Tissue culture	61 531	162	707	62 400	28 533	118·7
Egg Inoculation	1 370	....	....	1 370	3 442	....
Animal Inoculation	12 380	110	522	13 012	15 039	....
Neutralisation	106 490	2 854	10 716	120 060	113 092	6·2
Haemadsorption	5 778	98	432	6 308	13 475	....
Haemagglutination	16 799	888	100	17 787	9 163	94·1
Complement Fixation	16 599	942	2 413	19 954	28 814	....
Fluorescent antibodies	424	....	....	424	....	....
Electron microscopy	387	....	....	387	....	....
Others	18 118	72	1 015	19 205	19 007	1
Total	267 181	6 128	16 974	290 283	251 348	15·5

Table IIIA

BIOCHEMISTRY DEPARTMENT—TESTS DONE 1974

	Source				1974 Total	1973 Total	1974 Increase %
	State	Commonwealth	S.C.G.H.	Others			
Serum/Plasma Tests	43 645	5 393	233 984	53 135	336 157	457 464	....
C.S.F. Tests	43	5	1 687	15	1 750	1 657	5·6
Gastric contents	8	3	73	2	86	46	87·0
Effusions	2	....	171	1	174	227	....
Urine examinations	6 174	141	2 609	772	9 696	3 789	55·9
Metabolic tests	31	6	343	61	441	652	....
Others	90	12	249	50	401	411	....
Total	49 993	5 560	239 116	54 036	348 705	464 246	....

Table IIIB

TOXICOLOGY DEPARTMENT—WORK DONE 1974

	Source				1974 Total	1973 Total	1974 Increase
	State	Commonwealth	S.C.G.H.	Others			
Clinical—							
Drugs	830	46	288	141	1 305	1 114	17·1%
Alcohol	34	4	23	5	66	175	....
Pesticides	150	5	17	56	228	393	....
Miscellaneous	31	16	12	8	67	....	....
Forensic—							
Drugs	175	....	....	....	175	18	9·7 times
Alcohol	441	....	....	....	441	23	19·2 times
Public Health Specimens—							
(Food and Clean Air)	1 410	....	....	....	1 410	236	6 times
Total	3 071	71	340	210	3 692	1 959	88·4%

Table IV

HAEMATOLOGY DEPARTMENT—WORK DONE 1974

	Source				1974 Total	1973 Total	1974 Increase
	State	Common-wealth	S.C.G.H.	Others			
Red Cells—							%
Total levels	5 392	547	....	2 325	8 264	22 639	...
Haematocrit	5 392	547	....	2 325	8 264	22 639	....
Absolute values	16 176	1 641	....	6 975	24 792	67 917	....
Sedimentation rate	738	470	....	455	1 663	13 138	....
Film examination	897	13	....	452	1 362	2 677	....
Fragility tests	....	....	....	2	2	11	....
Reticulocytes	30	1	....	18	49	2 083	....
Stipple cells	1	....	....	1	2	2	....
H.C. levels	5 392	547	....	2 325	8 264	23 138	....
Platelets	97	7	....	148	252	2 620	....
White Cells—							
Total	5 392	547	....	2 325	8 264	22 639	....
Differential	288	15	....	255	558	8 661	....
L.E. Cells and Latex cells	28	7	1	64	100	452	....
Direct Eosinophil count	8	....	1	6	15	360	....
Blood Grouping—							
A.B.O.	4 215	48	2 289	2 703	9 255	8 481	9·1
Rhesus D.	4 215	48	2 289	2 703	9 255	8 481	9·1
Antibody screen, titre and Identification	2 199	48	2 339	2 751	7 337	6 872	6·8
Compatibility	15	2	7 909	58	7 984	6 824	17·0
Genotype	2	....	12	36	50	71	....
Paternity tests	61	....	....	39	100	10	10 times
Transfusion reactions	....	....	2	....	2	....	....
Bone Marrow Examinations	6	....	....	11	17	104	....
Plasma Viscosity	....	....	....	1	1	2	....
Clotting Functions—							
Bleeding time	6	1	....	2	9	192	....
Clotting time	9	....	....	2	11	1 223	....
Prothrombin time	235	6	....	45	286	3 911	....
Other Coagulation Tests	1	....	....	28	29	632	....
Others	196	31	131	94	452	495	....
Total	50 991	4 526	14 973	26 149	96 639	226 274	....

Table V

RADIOISOTOPE SECTION—WORK DONE 1974

	Source				1974 Total	1973 Total	1974 Increase
	State	Common-wealth	S.C.G.H.	Others			
Thyroxine T4	4 392	3 141	6 128	7 336	21 000	11 853	77·2%
Tri-iodothyronine uptake T3	1 287	1 217	1 988	2 068	6 560	4 471	46·7%
B_{12} assay	5 479	339	3 125	1 918	10 861	4 737	129·3%
Folic acid assay	5 116	349	2 981	1 711	10 157	5 040	101·5%
Insulin	567	....	1 330	240	2 137	481	4·4 times more
Shilling's test	168	63	305	28	564	260	116·9%
Digoxin assay	920	762	1 864	378	3 924	846	4·6 times
Red cell survival and Blood volume studies	50	....	98	....	148	20	7·4 times
Human chorionic Somatomammotrothin	192	4 112	....	306	4 610	1 112	4·1 times
Iron clearance	....	....	....	....	....	14	....
Iron neutralisation	....	....	....	....	....	33	....
Iron absorption	....	....	....	....	....	18	....
Australian Antigen	603	72	423	....	1 098	130	8·4 times
Radioisotope Folates	....	....	....	....	....	178	....
Insulin Turnover	....	....	....	....	....	12	....
Thyroid stimulating hormone	874	77	329	220	1 500	....	....
Protesterone	400	....	....	....	400	....	....
Lutenizing hormone	125	....	....	....	125	....	....
Human growth hormone	200	....	....	....	200	....	....
Total	20 373	10 135	18 571	14 205	63 284	29 205	116·7%

Table VIA

HISTOPATHOLOGY AND MORBID ANATOMY—WORK DONE 1974

	Source				1974 Total	1973 Total	1974 Increase
	State	Common-wealth	S.C.G.H.	Others			
							%
Autopsies—							
Forensic	1 293	....	....	....	1 293	1 110	16·5
Sections—							
Autopsy, Forensic	14 989	....	....	....	14 989	13 481	11·2
Autopsy, Others	10 062	....	....	....	10 062	4 909	105·0
Biopsy	3 446	1 913	37	8 648	14 044	15 366	....
Miscellaneous	....	....	....	....	....	279	....
Special Staining—							
Autopsy, Forensic	3 811	....	....	....	7 506	6 056	24·0
Autopsy, Others	2 659	....	....	....			
Biopsies	1 036	....	....	....			
Frozen Sections—							
Autopsy, Forensic	64	....	....	....	918	347	164·6
Autopsy, Others	26	....	....	....			
Biopsy	77	1	....	30			
Immunology	720	....	....	....			
Smears	24	....	....	....	24	10	140·0
Immuno Fluorescent Antibodies—	....	....	....	....	....	997	....
Total	38 207	1 914	37	8 678	48 836	42 555	14·8

Table VIB

CYTOLOGY—WORK DONE 1974

	Source				1974 Total	1973 Total	1974 Increase
	State	Common-wealth	S.C.G.H.	Others			
							%
Slides	6 137	3 652	1 070	12 679	23 538	23 048	2·1

	1974		1973		Increase 1974	
	No. of Cases	No. of Slides	No. of Cases	No. of Slides	Cases	Slides
					%	%
Lung Specimens	966	2 778	3 284	4 860	....	....
Cervical specimens	8 437	19 923	7 101	16 570	18·8	20·2
Other specimens	214	685	444	1 087	....	....
Special slides	....	152	....	531	....	....
Total	9 617	23 538	10 829	23 048	....	2·1

Table VII

SEROLOGY DEPARTMENT—TESTS DONE 1974

	Source				1974 Total	1973 Total	1974 Increase
	State	Common-wealth	S.C.G.H.	Others			
							%
Treponemal tests	99 130	2 960	2 211	....	104 301	92 620	12·6
Bacterial serology	19 358	715	3 556	2 816	26 475	27 436	....
Viral, Rickettsial, Helminithic and Protozoal tests	10 000	167	1 600	....	11 767	10 044	17·2
Hormone tests	440	2	173	430	1 045	917	14·0
Medico-legal tests	11 741	....	....	....	11 741	10 262	14·4
Chromosome studies	561	3	12	....	576	495	16·4
Others	547	22	269	22	860	1 188	....
Total	141 777	3 869	7 821	3 298	156 765	142 962	9·7

Appendix III

Tuberculosis Control Branch

F. G. B. Edwards, B.A., LL.B., M.B., B.S., F.C.C.P., F.A.C.M.A.,
Director

133 persons developed disease due to mycobacteria (other than leprosy), giving an incidence for the year of 12·4 per 100 000. The relative rates in the 2 sexes conformed to the expected pattern i.e. 16·3 in males and 8·4 in females. For both sexes there was a slight drop from the 1973 rates, which were 16·8 and 9·8 respectively. The drop reflected a slight overall decline in rates shown for the 1970–74 period. The year 1971 however was unusual, in that the male rate was at its lowest—i.e. 14·4 per 100 000—for the five year period, whereas the female rate was at its highest (11·0).

The notification figures shown in Table 1 include a few persons who were transfers from Tuberculosis Registers in other States.

New Cases

The incidence of new cases (i.e. including all forms of tuberculosis) was 15·4 for males and 7·6 for females, and 11·7 for all persons. If non-pulmonary disease is excluded, the male and female rates were 12·6 and 4·2 respectively. Again all these rates showed a slight drop from the 1973 figures.

The incidence of newly diagnosed cases of pulmonary disease due to M. tuberculosis is important, as it is this particular group which is chiefly responsible for the spread of infection within the State. It appears that at present the main source is older males. Amongst males generally the incidence was 11·5, in marked contrast to females in whom the incidence was only 3·3, almost the same as in 1970 (3·1), with a peak at 7·4 in 1972. The 1974 rate for all persons was 7·5, bringing it back to the 1970 level (7·6), following a rise to 11·1 per 100 000 in 1972.

Non-pulmonary disease

In the five year period 1971–74 there was a slight excess of non-pulmonary disease in females. For the whole population the incidence in both 1970 and 1974 was 3·1 per 100 000, there having been only slight variations from this figure in the intervening 3 years.

12 of the 14 patients diagnosed with genitourinary tuberculosis in 1974 were born outside Australia. On the other hand only 4 of the 16 with lymphadenitis due to acid-fast bacilli were non-Australian born—a corollary of the preponderance of these gland infections amongst children.

5 of the patients with genitourinary tuberculosis were born in the United Kingdom (3 males, 2 females); 3 were born in Yugoslavia (2 males, 1 female); 1 patient from Greece, 1 from Japan and 1 from Mauritius, all 3 being females.

In contrast to the lymphadenitis cases, which have varied very little, genitourinary cases have steadily increased in number since 1968. In that year there were only 8 cases reported. It seems likely that this type of disease represents new activity in a lesion of remote origin, rather than a straight out new infection acquired by contact with an infectious person. In those patients of non-Australian origin who are considered to have acquired their original infection in the country of origin, there is characteristically a long latent interval.

Bone and joint tuberculosis appears to be on the wane. Only 2 cases were reported in 1974, after declining from a peak of 6 in 1968.

Pulmonary Disease According to Extent of Lesions

It might be anticipated that the suspension of mass compulsory surveys in 1972, if it were to have a deleterious effect on the TB control programme, would result in an increase in the proportion of more advanced cases, or an increase in the incidence of pulmonary disease, or both. I have already shown that the general incidence of the disease, has not risen in the subsequent 2 years. On the other hand Table 2 shows that while there was no real change in the percentage of advanced cases reported after surveys were suspended, moderately advanced cases rose from 40·0% (1972) to 46·2%, and cases with minimal disease fell from 40·8% to 34·6%. These variations are however marginal and it is too early to draw any inference.

Reactivations

The length of the interval between the original active episode and the present reactivation in the 8 patients concerned (Table 6) averaged 22·5 years. The reactivation rate of 0·7 per 100 000 population was almost identical with that shown in the previous 2 years, and represents a low which it would be difficult to better. Brief details of the original episode in the 8 patients concerned are given here:—

Patient 1—Was treated for primary tuberculosis in England in 1956. His regime consisted of a course of streptomycin, PAS and isoniazid lasting 6 months only.

Patient 2—In this case the disease was controlled in 1952 by an upper lobectomy and thoracoplasty, plus 11 months drug therapy consisting of 9 months on 2 drugs, ending with 2 months on 3 drugs. The drugs used in this instance were streptomycin, PAS and conteben (thiacetazone).

Patient 3—This patient was treated for his original infection in 1943 with bed rest alone and never received antituberculous drug therapy.

Patient 4—Was treated for minimal disease in 1965. Although a completely adequate course of drugs was prescribed, it is very doubtful whether she followed this regime with any consistency after leaving hospital.

Patient 5—This patient was treated with Streptomycin, PAS and isoniazid in 1961. He was a known alcoholic and is thought to have had only 6 months consistent treatment.

Patient 6—An ex-goldminer, diagnosed with advanced silico TB in 1952. He received adequate drugs over an extended period lasting about 3 years.

Patient 7—This man's original tuberculosis, contracted in 1938, was apparently brought under control by an artificial pneumothorax. Induction was however followed by the development of a chronic empyema on the pneumothorax side.

Patient 8—The original episode in this case was tuberculosis of the ankle in 1945. No anti-tuberculosis drugs were given in the intervening years until 1974 when she presented with active renal tuberculosis.

Only 1 of the patients—the goldminer with advanced silicotuberculosis—had received adequate chemotherapy for his original infection. This reinforces the case, previously advocated, for prolonged—possibly lifelong—chemotherapy for patients whose tuberculosis is complicated by pneumoconiosis, and perhaps by other chronic lung conditions.

Atypical Disease

There were 19 patients whose disease proved to have been caused by mycobacterial species other than M. tuberculosis. This group represented 12·8% of all the new cases of mycobacterial disease reported (excluding leprosy) and a population incidence of 1·5 per 100 000. The corresponding number in 1973 was 24 patients, 17·6% or an incidence of 2·2 per 100 000. 2 of these patients had pulmonary disease due to M. kansasii; 1 patient had skin lesions due to an active infection by M. marinum (swimming pool granuloma) and in the remaining 16 patients the mycobacteria responsible belonged to the "MAIS" group of organisms (M. aviumintracellulare—scrofulaceae). The following shows the serotypes of these 16 strains:—

Serotype		No. Patients		
Old Designation	New Designation	Pulmonary	Glands	Total
IV	4	1	....	1
VII	7	1	....	1
Watson	9	....	1	1
IIIa	10	1	....	1
Howell	12	1	1	2
Boone	14	2	2	4
Darden	19	2	....	2
Lunning	42	1	1	2
Gause	43	....	2	2
		9	7	16

Not included in this group were 5 young children who presented with lymph node infections histologically positive but culture negative for mycobacteria. All 5 gave strong reactions of 10mm. of induration or more on testing with 10 IU of PPD—Avian (C.S.L. preparation) but a nil or very weak reaction to the corresponding human strain antigen, suggesting that "atypical" organisms were responsible. These findings, together with the absence of a history of contact, indieate that in Western Australia mycobacterial lymph node disease in children is in the majority of cases due to non-infectious species of mycobacterial.

Sources

Chest clinics were directly responsible for the diagnosis in 24·8% of the cases, as against the average of 32·1% for the 5 year period to 1974. On the other hand, large general hospitals reported 17·6%, 6% above the five year average, while private medical practitioners reported 24·1, or 7·5% over the average. It would appear that the deficit in cases diagnosed through chest clinics and the presumed deficit due to suspension of compulsory surveys have been made up by the increased notifications from medical practitioners and general hospitals.

3·8% were discovered at post mortem, which is close to the average figure for the 5 years.

Persons Born Outside Australia

78 (55·7%) of patients notified to the Department were born outside Australia. This is out of proportion, as only approximately 27% of the State's population is of foreign origin (1971 census figures). 33 of these patients were born in the United Kingdom, 9 in Yugoslavia, 8 in India, 7 in Italy and 5 in Malaysia, the remainder being of various single origins. 13 patients were diagnosed within the first year of arrival in this country. 4 of the 13 were discovered through attendance for routine x-ray immediately on arrival, including 3 members of a family originating from India and another patient also from India.

The incidence of tuberculosis in non-Australian born males was slightly above 3 times that in Australian born males, while in females it was a little more than twice as great. These rates are comparable to similiar rates reported in Western Australia in previous years, and are higher than those in some other States.

Special Surveys

In 1973–4 a voluntary chest x-ray survey was carried out on men of 45 years of age and over, a group which past experience has shown has a relatively high incidence of tuberculosis and other chronic lung conditions. Offers were sent individually by letter.

Amongst the 18 286 men x-rayed, 8 cases of pulmonary tuberculosis (a rate of 0·4 per 1 000 x-rays) were found, and 24 cases of bronchial carcinoma (1·3 per 1 000 x-rays).

Table 1

TUBERCULOSIS—MAIN STATISTICAL FIGURES

Year	Mean Population 1,000s	Notifications (includes transfers-in)				No. on Register (Pulm.) at 31st Dec.	No. on Register per 100,000 (Pulm.)	Number Receiving T.B. Allowance at 31st Dec.	Deaths			Death Rate per 100,000	
		Pulm. (incl. Pleural effus.)	Non-Pulm.	Total	Pulm. per 100,000				Pulm.	Non-Pulm.	Total	Pulm.	All Forms
1950	558	586	18	604	104·8	2,100	376	515	125	3	128	22·4	22·9
1951	580	467	37	504	80·4	2,402	413	474	76	6	82	13·1	14·1
1952	601	508	49	557	84·5	2,574	428	396	75	7	82	12·5	13·6
1953	621	378	34	412	60.6	2,762	445	361	43	3	46	6·9	7·4
1954	640	348	34	382	54·3	2,769	432	326	57	4	61	8·9	9·5
1955	659	413	39	452	62·7	2,965	450	330	31	2	33	4·7	5·0
1956	677	424	44	468	62·6	2,900	428	264	43	3	46	6·3	6·8
1957	692	332	32	364	47·9	2,786	403	198	36	1	37	5·2	5·3
1958	706	355	24	379	50·3	2,726	386	213	22	4	26	3·1	3·4
1959	726	320	34	354	44·1	2,684	369	182	24	....	24	3·3	3·3
1960	731	296	34	330	40·5	2,388	327	148	29	1	30	4·0	4·1
1961	737	209	41	250	28·4	1,349	183	89	18	1	19	2·4	2·6
1962	755	243	25	268	32·2	1,333	177	90	24	4	28	3·2	3·7
1963	773	216	28	244	27·9	1,218	158	92	13	....	13	1·7	1·7
1964	790	176	32	208	22·3	1,221	154	88	20	....	20	2·5	2·5
1965	806	153	25	178	19·0	919	114	65	12	....	12	1·5	1·5
1966	836	134	36	170	16·0	840	100	64	16	....	16	1·9	1·9
1967	877	137	34	171	15·6	814	93	54	9	....	9	1·0	1·0
1968	910	145	37	182	15·9	680	75	44	8	1	9	0·9	1·0
1969	947	133	27	160	14·0	659	70	43	8	....	8	0·8	0·8
1970	983	113	35	148	11·5	653	67	32	10	....	10	1·0	1·0
1971	1,029	113	30	143	11·0	625	61	27	17	2	19	1·6	1·8
1972	1,053	125	30	155	11·9	569	54	40	8	....	8	0·8	0·8
1973	1,068	110	36	146	10·3	522	49	15	11	....	11	1·0	1·0
1974	1 090	104	36	140	9·5	480	44	17	8	1	9	0·7	0·8

Table 2

ANNUAL NOTIFICATIONS OF PULMONARY TUBERCULOSIS SHOWING STAGE OF DISEASE *

Year	Parenchymal Disease						Pleural Effusion		Total
	Minimal		Moderately Advanced		Advanced				
		%		%		%		%	
1952	122	24·0	275	54·1	101	19·9	10	2·0	508
1953	98	25·9	210	55·5	65	17·2	5	1·4	378
1954	96	27·6	178	51·1	74	21·3	....	....	348
1955	111	26·9	225	54·5	64	15·5	13	3·1	413
1956	127	38·0	217	51·1	72	17·0	8	1·9	424
1957	102	30·7	163	49·1	61	18·4	6	1·8	332
1958	91	25·6	187	52·7	72	20·3	5	1·4	355
1959	103	32·2	151	47·2	55	17·2	11	3·4	320
1960	89	30·1	144	48·6	49	16·6	14	4·7	296
1961	90	43·1	73	34·9	34	16·3	12	5·7	209
1962	117	48·1	84	34·6	36	14·8	6	2·5	243
1963	99	45·8	89	41·2	26	12·0	2	1·0	216
1964	71	40·3	81	46·0	23	13·1	1	0·6	176
1965	75	49·0	60	39·2	17	11·1	1	0·7	153
1966	59	44·0	54	40·3	18	13·4	3	2·2	134
1967	56	40·9	59	43·1	20	14·6	2	1·4	137
1968	71	48·9	59	40·7	11	7·6	4	2·8	145
1969	57	42·9	62	46·6	13	9·8	1	0·7	133
1970	51	45·1	47	41·6	10	8·9	5	4·4	113
1971	42	37·2	52	46·0	17	15·0	2	1·8	113
1972	51	40·8	50	40·0	20	16·0	4	3·2	125
1973	45	40·9	46	41·8	14	12·7	5	4·6	110
1974	36	34·6	48	46·2	13	12·5	7	6·7	104

*Classified according to Diagnostic Standards N.T.A.

Table 3

TUBERCULOSIS NOTIFICATIONS FOR YEAR ENDED 31st DECEMBER, 1974

Showing Age, Sex, Form and Stage of Disease

Age Group	Males					Females					Persons					Total
	Pulmonary			Non. Pulm.	Pleur. Effus.	Pulmonary			Non. Pulm.	Pleur. Effus.	Pulmonary			Non. Pulm.	Pleur. Effus.	
	Min.	Mod. Adv.	Adv.			Min.	Mod. Adv.	Adv.			Min.	Mod. Adv.	Adv.			
0–4	....	....	....	2	....	3*	....	....	8	....	3*	....	....	10	.. .	13
5–9	....	....	....	1	1	....	....	....	1	....	....	....	....	2	1	3
10–14	1*	....	....	....	....	....	....	....	....	....	1*	....	....	....	....	1
15–19	1	....	....	....	....	....	....	....	1	1	1	....	....	1	1	3
20–24	....	....	....	1	....	1	1	....	1	....	1	1	....	2	....	4
25–29	2	3	1	2	1	3	....	....	....	....	5	3	1	2	1	12
30–34	1	1	....	....	1	....	....	....	....	....	1	1	....	....	1	3
35–39	....	1	....	2	....	1	....	....	1	....	1	1	....	3	....	5
40–44	1	2	....	2	....	....	1	....	1	....	1	3	....	3	....	7
45–49	5	3	1	....	....	....	....	....	3	....	5	3	1	3	....	12
50–54	2	3	2	....	1	3	2	....	....	1	5	5	2	....	2	14
55–59	2	4	2	....	....	....	1	....	....	....	2	5	2	....	....	9
60–64	3	6	....	3†	....	1	3	....	2	....	4	9	....	5†	....	18
65–69	3	4	3	1	1	....	1	....	1	....	3	5	3	2	1	14
70–74	2	5	2	1	....	....	1	....	1	....	2	6	2	2	....	12
75 and over	....	6	1	....	....	1	....	1	....	....	1	6	2	....	....	9
N/S	....	....	....	1	....	....	....	....	....	....	....	....	....	1	....	1
Total	23	38	12	16	5	13	10	1	20	2	36	48	13	36	7	140

* Primary

† Includes 1 Bovine

Table 4

SITE AND TYPE OF DISEASE (excludes transfers-in)

Pulmonary				Extrapulmonary			
Diagnosis	No.	% of		Diagnosis	No.	% of	
		Pulmonary Cases	All Cases			Extra-pulmonary Cases	All Cases
Primary	4	4·1	3·0	Genito-urinary	14	38·9	10·5
Pleural effusion	6	6·2	4·5	Lymph glands	16	44·4	12·0
Post-Primary				Bone and Joint	2	5·6	1·5
1. Minimal	28	28·9	21·1	Meninges	....	....	....
				Skin	1	2·8	0·8
2. Moderately advanced	47	48·4	35·3	Mastoid	1	2·8	0·8
3. Advanced	12	12·4	9·0	Empyema	1	2·8	0·8
				Spleen	1	2·8	0·8
Total	97	100	72·9	Total	36	100	27·1

Table 5

REACTIVATIONS

Previous Treatment	Number of Reactivations											Total
	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	
(1) No chemotherapy	8	6	5	4	4	7	2	6	4	3	3	52
(2) Inadequate chemotherapy—												
Without Surgery	13	5	13	5	4	11	6	5	3	4	3	72
With Surgery	5	2	1	4	1	....	....	....	....	....	1	14
(3) Apparently adequate chemotherapy	....	2	....	....	....	2	3	1	1	....	1	10
Total	26	15	19	13	9	20	11	12	8	7	8	148

Table 6

REACTIVATION RATES

Year	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974
No. of reactivations	26	15	19	13	9	20	11	12	8	7	8
As % of total cases....	12·5	8·4	11·2	7·6	4·9	12·5	7·4	8·4	5·2	4·8	5·7
Per 100 000 population	3·3	1·2	2·3	1·5	1·0	2·1	1·1	1·2	0·8	0·7	0·7

Table 7

ANALYSIS OF REGISTER AS AT 31st DECEMBER, 1974

A. Pulmonary Tuberculosis (excluding Pleural Effusions)

Activity	Number on Register According to Original Extent of Lesions			Total
	Minimal	Moderate	Advanced	
Active	40	58	9	107
Inactive—				
0–1 years	12	20	8	40
1–2 years	41	37	9	87
2–3 years	31	44	10	85
3–4 years	23	30	5	58
4–5 years	46	34	5	85
5+ years	1	1	....	2
	194	224	46	464

B. Pleural Effusion	16
C. Non-Pulmonary Tuberculosis	125
Total All Forms	605

Table 8

WESTERN AUSTRALIA : TUBERCULOSIS INCIDENCE BY COUNTRY OF BIRTH, 1962-1974 : MALES

Country of Birth	Population at 30th June, 1971 Thousands (Census)	Incidence per Thousand Persons													Total Notifications 1962–1974
		1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	
U.K. and Republic of Ireland	82·2	0·93	0·66	0·67	0·61	0·59	0·53	0·36	0·33	0·51	0·31	0·23	0·21	0·29	366
Germany	3·6	0·37	....	....	....	0·75	....	0·34	0·34	0·34	0·69	0·56	0·56	....	14
Greece	2·7	0·87	0·43	....	....	....	0·65	0·32	0·32	0·32	....	1·11	0·74	0·74	17
Italy	17·1	0·91	0·70	0·60	0·47	0·20	0·50	0·25	0·44	0·37	0·44	0·41	0·29	0·41	110
Netherlands	6·2	0·64	0·31	....	0·16	0·16	0·17	0·17	....	....	0·17	0·16	....	0·16	15
Poland	2·8	0·33	1·85	1·07	....	0·71	1·43	1·78	0·71	....	0·36	1·07	0·36	....	34
Yugoslavia	6·2	1·08	1·58	1·11	1·11	1·94	0·43	0·87	2·00	0·65	0·43	0·16	0·16	1·29	60
Other European	8·6	1·05	0·70	1·05	0·70	1·40	1·08	0·77	1·23	0·92	....	0·05	0·93	0·23	73
Other Birthplaces	23·8	1·09	1·19	0·74	1·23	0·61	0·68	1·52	0·51	1·27	0·93	0·67	0·50	0·55	146
Total non-Australian born	153·2	0·89	0·74	0·64	0·58	0·59	0·56	0·54	0·49	0·55	0·38	0·48	0·31	0·37	835
Australian-born	375·9	0·37	0·34	0·31	0·22	0·26	0·20	0·19	0·15	0·12	0·12	0·22	0·12	0·10	922

Table 9

WESTERN AUSTRALIA : TUBERCULOSIS INCIDENCE BY COUNTRY OF BIRTH, 1962–1974 : FEMALES

Country of Birth	Population at June 30, 1971 Thousands (Census)	Incidence per Thousand Persons													Total Notifications 1962–1974
		1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	
U.K. and Republic of Ireland	74·8	0·29	0·31	0·26	0·36	0·15	0·18	0·18	0·12	0·14	0·20	0·16	0·09	0·12	131
Germany	3·5	....	0·34	....	....	0·34	....	....	....	0·33	0·33	....	....	....	5
Greece	2·3	0·52	0·50	1·11	....	....	0·43	....	0·43	....	....	0·43	0·87	0·43	11
Italy	13·4	0·27	0·26	0·09	0·58	0·29	0·08	0·08	0·33	0·08	0·41	0·15	0·15	....	39
Netherlands	5·0	0·39	....	....	....	....	....	....	....	....	0·22	....	....	0·20	4
Poland	2·0	0·56	....	2·10	....	....	....	1·00	2·00	....	1·00	0·50	1·00	0·50	18
Yugoslavia	3·9	1·67	1·60	....	0·43	....	0·34	....	....	....	0·34	0·51	0·51	0·26	16
Other European	5·9	0·73	....	0·25	0·75	0·75	0·68	0·45	0·68	0·45	....	0·68	0·34	....	29
Other Birthplaces	19·3	0·29	0·14	0·45	0·15	0·15	0·20	0·82	0·51	0·61	1·33	0·47	0·36	0·41	69
Total non-Australian born	130·1	0·36	0·29	0·28	0·34	0·19	0·19	0·24	0·25	0·19	0·37	0·21	0·18	0·16	322
Australian-born	371·3	0·16	0·13	0·14	0·12	0·09	0·08	0·12	0·11	0·11	0·09	0·11	0·08	0·07	465

Table 10

PATIENTS FROM WHOM MYCOBACTERIA WERE ISOLATED (FOR THE FIRST TIME) IN 1974 (OTHER THAN M. TB)

Type	Casual Isolations	Persistent Isolations			Total
		Mycobacteriosis			
		Pulm.	Non-Pulm.	Total	
M. kansasii	1	2	....	2	3
M. marinum	....	....	1	1	1
Scotochromogens	2	....	2	2	4
M. intracellulare	25	9	5	14	39
Rapid Growers	5	....	....	....	5
Mixed	1	....	....	....	1
Total Patients	34	11	8	19	53

Table 11

MYCOBACTERIAL DISEASE OF LYMPH NODES IN CHILDREN

Year	Scotochromogenic mycobacteria Identified	M. intracellulare Identified	M. TB (Human) Identified	Cultures Negative	Total Cases
1961	....	1	....	1	2
1962	3	2	....	2	7
1963	....	3	....	8	11
1964	....	3	1	4	8
1965	....	1	....	5	6
1966	2	6	....	7	15
1967	1	3	....	9	13
1968	2	9	....	5	16
1969	1	5	....	5	11
1970	3	2	....	5	10
1971	....	3	....	3	6
1972	3	7	....	5	15
1973	6	8	....	1	15
1974	2	5	....	5	12
Total number of children	23	58	1	65	147

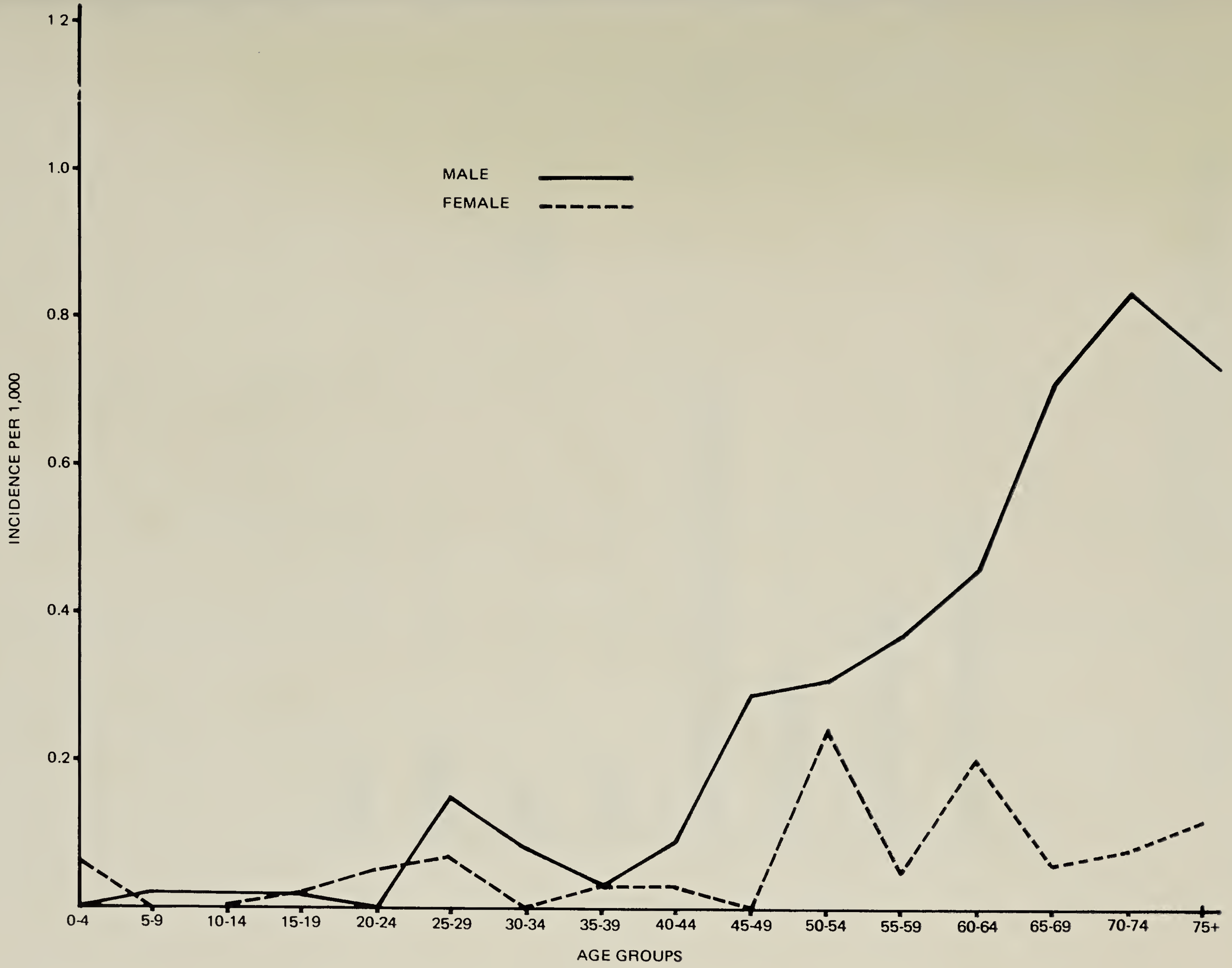
Table 12

PATIENTS NOTIFIED WITH ATYPICAL TUBERCULOSIS

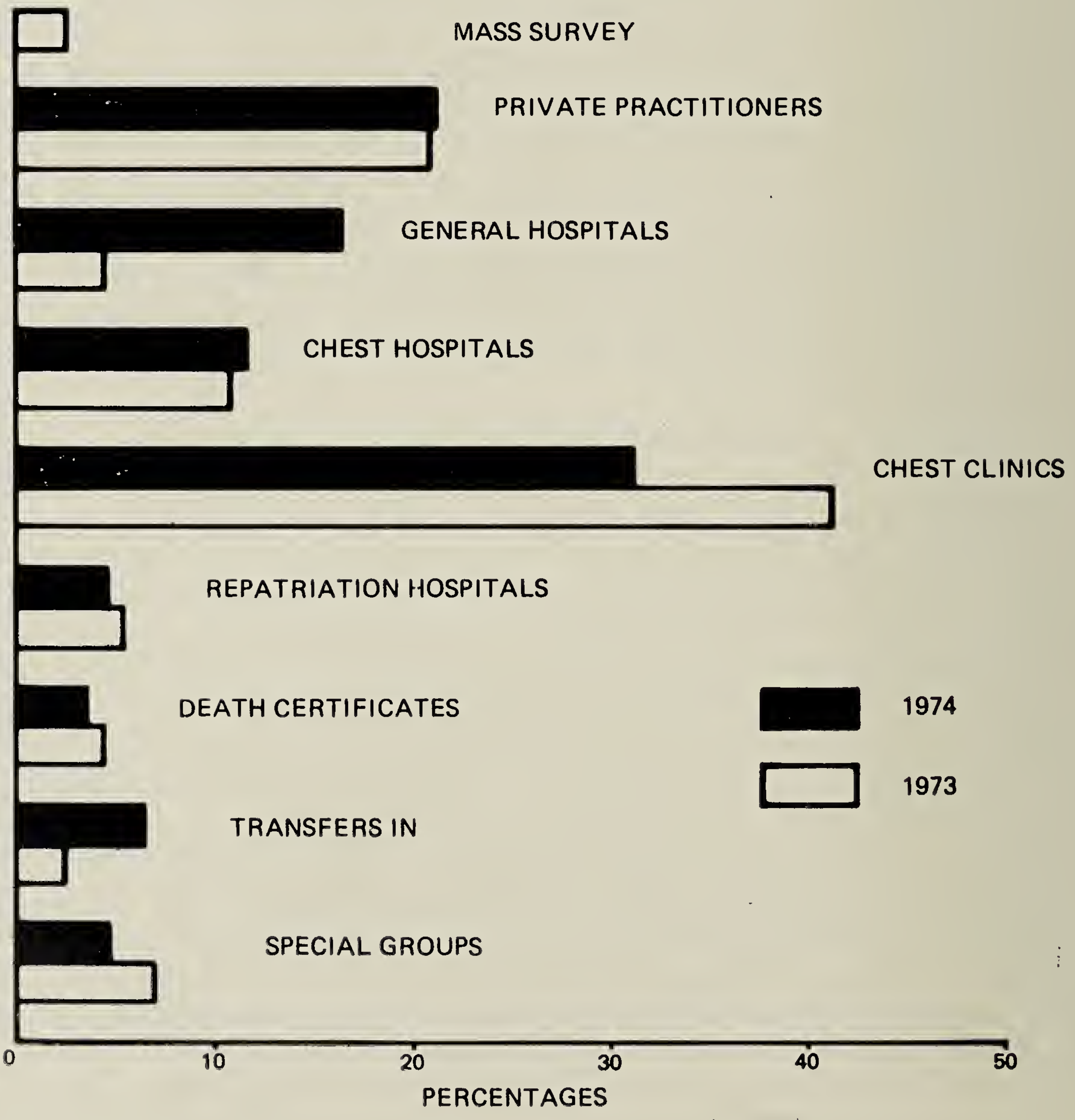
(including reactivations)

Year	M. kansasii		Scotochromogens				M. intracellulare				Rapid growers	
	Pulm.	Other	Pulm.	Lymph nodes	Other	Total	Pulm.	Lymph nodes	Other	Total	Pulm.	Lymph nodes
1955	....	....	....	....	....	....	1	....	....	1	....	....
1956	....	....	....	....	....	....	1	....	....	1	....	....
1957	....	....	....	....	....	....	1	....	....	1	....	....
1958	....	....	....	....	....	....	4	1	....	5	....	....
1959	....	....	....	....	....	....	10	2	....	12	....	....
1960	....	....	1	....	....	1	11	1	....	12	1	....
1961	....	....	2	....	....	2	11	1	....	12	....	....
1962	....	....	1	3	....	4	8	2	....	10	....	....
1963	....	....	3	....	....	3	17	3	....	20	....	....
1964	....	....	6	....	....	6	14	3	....	17	....	....
1965	2	....	2	....	....	2	13	1	....	14	....	....
1966	2	....	3	2	....	5	7	6	....	13	....	....
1967	1	....	4	1	....	5	6	3	....	9	....	....
1968	....	....	6	2	1	9	5	9	....	14	....	....
1969	1	....	....	1	....	1	10	5	....	15	....	....
1970	3	....	2	3	....	5	11	3	....	14	....	....
1971	....	....	1	....	....	1	5	3	....	8	....	....
1972	2	....	1	3	....	4	12	7	1	20	1	....
1973	....	1	....	6	....	6	8	8	....	16	....	1
1974	2	....	....	2	....	2	9	5	....	14	....	....
Total	13	1	32	23	1	56	164	63	1	228	2	1

Plus : Two patients with mixed pulmonary disease, in 1963 and 1970.


1 2
1.0
0.8
0.6
0.4
0.2
INCIDENCE PER 1,000
MALE
FEMALE
0-4
5-9
10-14
15-19
20-24
25-29
30-34
35-39
40-44
45-49
50-54
55-59
60-64
65-69
70-74
75+
AGE GROUPS

GRAPH SHOWING THE SOURCE OF NOTIFICATION OF CASES OF PULMONARY TUBERCULOSIS AS A PERCENTAGE OF TOTAL NOTIFICATIONS



Western Australia

Pulmonary Tuberculosis

Year	Population in 1,000s	Notifications Received	Incidence Rate per 100,000 Population	Deaths Registered	Mortality Rate per 100,000 Population
1911	287	259	90·2	190	66·2
1912	301	429	142·5	220	73·1
1913	313	424	135·5	206	65·8
1914	323	353	109·3	229	70·9
1915	321	336	104·7	233	72·6
1916	313	511	163·5	225	71·9
1917	306	464	151·6	217	70·9
1918	308	432	140·5	245	79·5
1919	320	467	145·9	289	91·6
1920	330	442	139·9	259	78·4
1921	334	424	126·9	277	82·9
1922	341	387	113·8	256	75·1
1923	351	361	102·8	216	61·5
1924	363	381	104·6	228	62·8
1925	373	403	108·4	259	69·4
1926	381	415	108·2	252	66·1
1927	392	409	104·3	231	56·4
1928	408	395	96·8	282	69·1
1929	421	400	95·0	245	53·4
1930	429	569	132·6	218	50·8
1931	432	372	86·1	223	51·6
1932	435	339	77·9	203	46·7
1933	439	295	67·2	207	47·2
1934	442	287	64·9	218	49·3
1935	447	270	60·4	210	47·0
1936	452	338	74·8	193	42·7
1937	457	239	53·0	172	37·6
1938	464	247	53·2	177	38·1
1939	470	202	43·0	179	38·1
1940	473	231	48·8	181	38·3
1941	474	154	32·5	185	39·0
1942	477	113	23·7	175	36·7
1943	477	273	57·3	144	30·2
1944	481	219	45·4	134	27·9
1945	488	271	55·5	149	30·5
1946	493	343	69·6	163	33·1
1947	502	372	74·0	128	25·4
1948	515	325	63·1	157	30·5
1949	533	499	93·6	123	23·1
1950	558	586	104·8	129	23·1

DEATH CLASSIFICATIONS ACCORDING TO 6th (1948) INTERNATIONAL LIST

Year	Population in 1,000s	Notifications Received	Incidence Rate per 100,000 Population	Deaths Registered	Mortality Rate per 100,000 Population
1950	558	586	104·8	125	22·4
1951	580	467	80·4	76	13·1
1952	601	508	84·5	75	12·5
1953	621	378	60·6	43	6·9
1954	640	348	54·3	57	8·9
1955	659	413	62·7	31	4·7
1956	677	424	62·6	43	6·3
1957	692	332	47·9	36	5·2
1958	706	355	50·3	22	3·1
1959	726	320	44·1	24	3·3
1960	731	296	40·5	29	4·0
1961	737	209	28·4	18	2·4
1962	755	243	32·2	24	3·2
1963	773	216	27·9	13	1·7
1964	790	176	22·3	20	2·5
1965	806	153	19·0	12	1·5
1966	836	134	16·0	16	1·9
1967	877	137	15·6	9	1·0
1968	910	145	15·9	8	0·9
1969	947	133	14·0	8	0·8
1970	983	113	11·5	10	1·0
1971	1,029	113	11·0	17	1·6
1972	1,053	125	11·9	8	0·8
1973	1,068	110	10·3	11	1·0
1974	1 090	104	9·5	8	0·7

Appendix IV

Epidemiology and Special Services

Dr. R. Allen, M.B., B.S., Medical Officer in Charge

EPIDEMIOLOGY & SPECIAL SERVICES

Notifications of infectious diseases during 1974 were generally less than those for the previous year. This is most evident in the intestinal group of diseases:—

	1973 notifications	1974 notifications	% Decrease
Salmonella infections	311	149	52·1%
Bacillary dysentery	212	165	22·2%
Infective Hepatitis (icteric form)	165	68	58·8%

One case of Typhoid was notified during the year—a returned tourist who contracted the disease while in India.

Lectures have been given to groups of trainee Nurses, Field Sisters and Medical students.

Special Immunisation Clinics were held at the University, Abattoirs and Government departments.

A follow-up survey was conducted during the year among children who had received Measles vaccine. The results suggested that the vaccine was effective, with a low reaction rate (see accompanying report).

IMMUNISATION

(a) *Poliomyelitis*—1 296 876 doses of Sabin Oral Poliomyelitis Vaccine have now been administered in this State, following a further 66 515 doses during 1974. This represents a decrease of 1·95% over doses administered in 1973. This decrease is predictable however, as by now most of the adult population who wish to be protected by this vaccine have completed the full course.

(b) *Other Diseases*—Injections against diseases other than poliomyelitis numbered 43 729—a 2·2% increase over the 1973 figure of 42 794.

The increase of apathy towards the protection of children by immunisation is becoming more obvious year by year—especially among the younger parents. Fear, in diseases such as Diphtheria, is no longer a stimulus to seek protection. The incidence of such diseases is now so low that fear has been supplanted by a casual indifference which must be regarded as negligence. Staff are finding it increasingly difficult to remove this barrier of apathy and replace it by routine acceptance of a procedure that has proved so successful—and so necessary—in the past.

MALARIA

Only four cases of this disease were notified during 1974. Investigation of these cases revealed that two originated from New Guinea and two from Madagascar.

Immunisation carried out during 1974

Sabin Vaccine	66 515
Triple Antigen	16 481
Combined Diphtheria & Tetanus	7 949
Tetanus Toxoid	4 600
Measles	5 107
Rubella	1 158
Miscellaneous	434
Total	110 244

MEASLES VACCINATION—A FOLLOW UP STUDY

Since isolation of the measles virus by Enders in 1954, several vaccines have been produced, aimed at giving protection against that disease. Of these, the inactivated vaccine has fallen into disrepute because of the risk of severe reactions sometimes brought on by re-immunisation with live attenuated vaccine, or by subsequently contracting natural measles. Live Vaccine derived from the original Edmonston strain often caused severe post inoculation reactions and was usually administered simultaneously with gamma globulin to lessen these reactions. A further attenuated strain (Beckenham 31) was to have been imported for general use in Australia, but was withdrawn by the manufacturers following neurological complications in a few children.

Arrangements were made for another attenuated strain (Schwarz) to be made available in Australia, and since August 1970 this vaccine, under the proprietary name of Lirugen, has been imported by the Commonwealth and distributed to the States for use in children between the ages of 1 and 9 inclusive, who have not suffered from measles.

During the second half of 1973, an extensive outbreak of measles occurred in the Perth metropolitan area, and early 1974 was considered an opportune time to conduct a survey aimed at determining the number of children who had not received adequate protection from the measles vaccine, and contracted measles even though previously vaccinated against the disease. The incidence and severity of post-vaccination reactions could also be investigated.

The survey commenced in February 1974 and was conducted by three nursing sisters seconded from the Trachoma Clinic. Eligible children were those living in the Perth metropolitan area who received measles immunisation between the time it first became available in W.A. (August 1970) and June 1973, prior to the commencement of the measles epidemic. All children included in this survey received their immunisation either at the Health Department's Clinic in Rheola Street, West Perth, or at the Perth City Council's Clinic in Council House.

In all, the parents of 1 544 eligible children were interviewed, while the parents of approximately 800 other children were unable to be contacted, having moved from their stated address, or absent from home on at least two separate occasions.

Table I shows the child's age at time of vaccination. It will be seen that the majority (59·2%) were in the 1–2 year age group, while 74·3% were aged 1–3 years.

Table I

AGE AT TIME OF VACCINATION

Under 1 year	1 year	2 years	3 years	4 years	5 years	6 years	7 years	8 years	9 years	Age not stated	Total
3	438	476	233	183	102	59	21	8	10	11	1 544

The three children under the age of one year who received the vaccination were suffering from severe chronic illnesses, and it was considered advisable to vaccinate them at an early age in an attempt to provide at least some protection against measles. It was recommended that the procedure be repeated at age 12–15 months to ensure that the children would be fully protected.

Table II gives the month during which vaccination was carried out. The only variations from the expected trend occur in October/November 1970, when few vaccinations were carried out due to vaccine shortage, and in June 1971 when vaccinations increased following Press publicity.

Table II

DATE OF VACCINATION

	1970	1971	1972	1973	Date not Stated
January	....	61	50	68	....
February	....	40	41	62	....
March	....	52	36	61	....
April	....	47	42	46	....
May	....	49	48	56	....
June	....	93	39	38	....
July	....	50	37	....	....
August	44	38	50	....	....
September	32	43	33	....	....
October	5	57	45	....	....
November	10	42	48	....	....
December	21	20	33	....	....
	....	....	....	....	7
	112	592	502	331	7

A total of 26 cases of measles were reported, occurring from one month to thirty-three months after vaccination. This represents an incidence of 1·68%. Of these cases, the disease was classified as " mild " in 20 cases, " moderate " in 4 cases, and was regarded as " severe " in the remaining 2.

The average interval occurring between vaccination and onset of the disease was 18·8 months. Details of these cases are shown in Table III.

Table III

DETAILS OF POST-VACCINATION MEASLES CASES

Date of Vaccination	Age of Child	Severity of Disease	Interval Between Vaccination and Onset of Disease
December, 1970	3 years	Mild	33 months
January, 1971	5 years	Mild	30 months
January, 1971	6 years	Mild	30 months
February, 1971	2 years	Moderate	18 months
April, 1971	1 year	Mild	27 months
April, 1971	1 year	Moderate	30 months
April, 1971	4 years	Moderate	27 months
May, 1971	1 year	Mild	3 months
May, 1971	1 year	Mild	24 months
June, 1971	2 years	Moderate	24 months
June, 1971	3 years	Mild	30 months
June, 1971	3 years	Mild	24 months
October, 1971	3 years	Mild	24 months
January, 1972	2 years	Mild	18 months
January, 1972	2 years	Mild	24 months
February, 1972	3 years	Severe	18 months
March, 1972	1 year	Mild	2 months
March, 1972	4 years	Severe	18 months
April, 1972	3 years	Mild	15 months
May, 1972	2 years	Mild	18 months
May, 1972	2 years	Mild	18 months
July, 1972	3 years	Mild	1 month
October, 1972	1 year	Mild	12 months
March, 1973	2 years	Mild	6 months
March, 1973	1 year	Mild	9 months
April, 1973	3 years	Mild	6 months

At interview, parents were also questioned about reactions following vaccination. One hundred and thirty six children (8·8%) exhibited some evidence of reaction between five and fourteen days after the injection (average 8·9 days).

As all parents were warned at the time of inoculation about the possibility of reaction, in most cases the mothers coped satisfactorily with the adverse effects, the majority of which were mild. In fifteen instances (1·0%) however, the reaction was classified as severe, causing parental anxiety and requiring medical supervision. Three children with convulsions and one with bronchopneumonia were hospitalised.

Table IV shows the frequency and incidence of the signs and symptoms occurring in the 136 reported reactions.

Table IV

SIGNS AND SYMPTOMS IN 136 POST INOCULATION REACTIONS

	Number Reported	Incidence
		%
Fever	123	7·97
Rash	58	3·76
Conjunctivitis	27	1·75
URTI	25	1·62
Malaise	24	1·56
Cough and sore throat	16	1·04
Nausea and/or vomiting	7	0·45
Photophobia	4	0·26
Lethargy	3	0·19
Convulsions	3	0·19
Bronchopneumonia	1	0·06
Delirium	1	0·06

Comments

All the vaccinations followed up in this survey were carried out either at the Central Immunisation Clinic in Rheola Street, West Perth, or at the Perth City Council's Immunisation Clinic at Council House.

At these Centres preparation of the vaccine and its administration are rigidly controlled, contra-indications to its use are publicized, and the stringent requirements regarding temperature variation and sunlight in the vaccine's storage are strictly adhered to. It is possible that such complete precautions are not taken when the vaccine is administered in other areas. If this is the case, failure of the vaccine to protect children against measles may be more common in these areas, due to loss of potency, and the incidence of post-inoculation reactions may be much higher.

The results of this survey suggest that the Measles Vaccine (Schwarz strain) at present in use in Australia, confers a high degree of immunity.

The measles epidemic during the second half of 1973 was an extensive one and there would be very few of the 1 544 children followed up in this survey who would not have had the opportunity of coming into contact with the disease. The fact that only twenty six of these children actually contracted measles suggests that the vaccine is responsible for a high rate of protection at least over a three year period. Only time will reveal the duration of this effective immunity.

The reaction rate of 8·8% revealed by this follow-up is lower than the rate usually associated with other strains of Measles Vaccine, but is sufficiently high to make it essential that all parents are warned of the possibility of such an occurrence, so that unnecessary panic may be avoided. The fact that severe reactions occurred in 1% of vaccinees, and the hospitalisation of four children with convulsions or bronchopneumonia, emphasises the necessity for care in the use of this vaccine, and stresses the wisdom of ensuring that the vaccine is not administered in the presence of contra-indications.

Summary

1. An attempt has been made to arrive at an approximate estimation of the effectiveness of Measles Vaccine (Schwarz strain) in Western Australia.
2. The parents of 1 544 vaccinees were interviewed following an extensive measles epidemic.
3. Twenty six of these children were stated to have had measles—a failure rate of 1·68%.
4. The disease appeared to have been attenuated in 20 of these children, and unchanged in 4 others, but was classified as a severe attack in the remaining 2.
5. 136 children suffered post-inoculation reactions—this represents 8·8%.
6. 15 children suffered a severe reaction following vaccination and 4 children required hospitalisation.

Appendix V

Venereal Disease Control Branch

W. A. Newnham M.B., B.S. Venereologist-in-charge

The Department of Public Health's Clinic for the Treatment of Venereal Diseases has two basic functions. Firstly to act as a venereal disease control centre for the State of Western Australia and secondly to act as an outpatient department of Royal Perth Hospital. The co-operation of the Royal Perth Hospital in both the medical and administration departments has been greatly appreciated.

The histogram (page 56) is relevant because it shows the notified cases of venereal disease per 100 000 head of population since 1917. It can be seen that a rise in notification has occurred since 1960, and there is, in fact, a greater incidence in 1974 than in any year following the Second World War.

The table below indicates a much larger figure for total attendances in 1974 representing a 38·9% increase over 1973. Of more significance is the increased number of males attending the clinic for the first time showing a 40·4% increase over 1973. Of even greater significance is the 41·4% increase in the number of new female patients in this period. This is a direct result of improved contact tracing. The male/female ratio has been improved from 2·7 : 1 to 2·5 : 1. Many parts of the world have reported a lower figure than 2·5 and steps are being taken to achieve this end.

Year	Total patients attending the clinic	New male patients	New female patients	Total of new patients	Proportion male—female patients
1971	5 760	799	235	1 034	3·4 : 1
1972	10 786	1 615	597	2 212	2·7 : 1
1973....	10 879	1 922	770	2 692	2·7 : 1
1974....	15 119	2 698	1 089	3 787	2·5 : 1

A new temporary clinic is at present under construction, and the expected date of occupancy is early in 1975. In the present clinic there is not a discrete female contact tracing area and any contact tracing has to be done in the female examination room. This is hardly effective. Improved facilities are to include a separate office for the female contact tracing service.

Also the new clinic will have a second office for a second male contact tracing officer to see male patients. Mr. F. K. Hillman has been appointed to fill this position. He will assist Mr. S. W. Fleming who is, at present, seeing the male patients in an endeavour to find the sources of their infections.

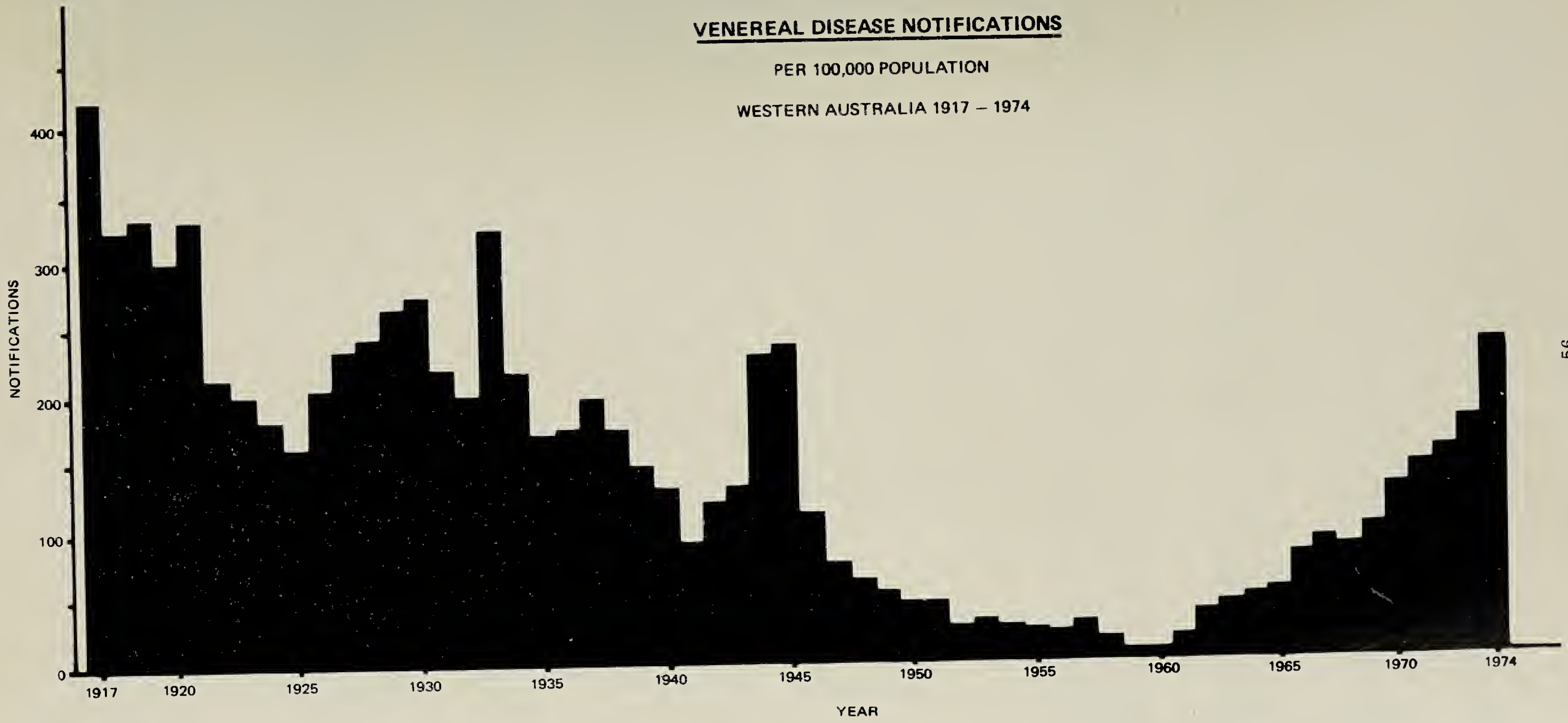
The new temporary clinic will have greatly enlarged laboratory space where investigation into immuno-fluorescence and L forms of gonococci is to be considered. The senior technologist Mr. P. Fogarty now has an assistant technologist, Miss Marcia Watson.

The new clinic will be temporary in so far as it is planned to establish a permanent clinic in the new diagnostic centre to be built as part of the proposed extensions to the Royal Perth Hospital.

VENEREAL DISEASE NOTIFICATIONS

PER 100,000 POPULATION

WESTERN AUSTRALIA 1917 – 1974



A qualified male nurse is to be engaged to assist in the male clinic.

The figures for the Fremantle Hospital Clinic are presented below. The clinic is conducted in the Outpatients Department on each Monday from 5.00–6.00 p.m. for males and on each Wednesday from 4.00–6.00 p.m. for females.

Total Attendances			First Attendances			N. Gonorrhoeae			Syphilis		
Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
313	134	447	90	49	139	47	14	61	4	2	6

The co-operation of Dr. G. Leyland, Medical Superintendent and Dr. K. Murphy, Medical Officer in Charge of the Casualty Department is gratefully acknowledged.

The staff of the Venereal Disease Control Centre now comprises three permanent medical officers, two public health nurses, a trained sister who is employed as a health officer, two male health officers who conduct the male contact tracing service, a male clinic attendant who acts as receptionist on the male side and a typist/receptionist/-telephonist for the female clinic. In addition there are two technologists staffing the laboratory.

The table below shows in percentages the notified cases of veneral disease in Western Australia over the last decade. It is significant that the combined percentages of the 15–24 year age groups constitute 56·4% of the total. The over 35 year age group has 5·2% increase over the 30–34 year age group.

VENEREAL DISEASE—W.A. 1965–1974

AGE DISTRIBUTION

Year	15–19 Years	20–24 Years	25–29 Years	30–34 Years	Over 35 Years	Age Not Stated
	%	%	%	%	%	%
1965	22·94	29·87	17·53	9·74	16·88	3·03
1966	19·72	31·13	17·61	10·99	15·49	5·07
1967	23·84	25·27	16·21	11·68	19·90	3·10
1968	21·31	31·19	15·28	9·11	19·38	3·72
1969	20·33	26·95	17·12	12·55	20·82	2·24
1970	19·02	28·83	19·40	12·45	19·02	1·28
1971	23·91	29·74	18·02	10·78	17·34	0·20
1972	25·46	26·85	17·93	10·93	18·75	0·05
1973	27·35	28·68	18·23	10·75	14·65	0·31
1974	25·79	30·66	17·75	10·11	15·31	0·36

The total notified venereal disease table shows the figures for the last decade. There is a rise in 1974 of 28·1% over 1973 which is mainly due to two factors, an increase in venereal disease and an increase in venereal disease notifications from all areas.

VENEREAL DISEASE—W.A.

1965–1974

Year	Gonorrhoea	Syphilis	Granuloma	Chancroid	Total Venereal Disease
1965	453	9	....	....	462
1966	690	20	....	....	710
1967	796	41	....	2	839
1968	718	60	1	....	779
1969	817	209	....	2	1 028
1970	1 166	159	3	....	1 328
1971	1 236	254	2	1	1 493
1972	1 467	258	2	1	1 728
1973	1 657	290	2	3	1 952
1974	2 032	462	1	6	2 501

The breakdown into sex and age is shown below in the two tables for the last decade.

VENEREAL DISEASE—W.A., 1965–1974

AGE AND SEX DISTRIBUTION

A. MALES

Year	15–19 Years	20–24 Years	25–29 Years	30–34 Years	Over 35 Years	Age Not Stated	Total
1965	73	118	73	44	62	13	383
1966	101	205	113	67	96	33	615
1967	138	184	115	84	152	23	696
1968	112	215	107	59	137	24	654
1969	132	243	161	121	181	20	858
1970	163	321	219	140	192	11	1 046
1971	207	357	221	132	194	3	1 114
1972	223	365	234	142	235	1	1 200
1973	285	422	271	160	230	5	1 373
1974	332	514	331	193	280	5	1 655

B. FEMALES

Year	15–19 Years	20–24 Years	25–29 Years	30–34 Years	Over 35 Years	Age Not Stated	Total
1965	33	20	8	1	16	1	79
1966	39	16	12	11	14	3	95
1967	62	28	21	14	15	3	143
1968	54	28	12	12	14	5	125
1969	77	34	15	8	33	3	170
1970	89	61	38	25	60	6	279
1971	150	87	48	29	65	....	379
1972	217	99	76	47	89	....	528
1973	249	138	85	50	56	1	579
1974	313	253	113	60	103	4	846

The finding that in females the greatest incidence is in the 15–19 age group and in males 19–24 age group is consistent with many other parts of the world. Also the increased incidence of the over 35 to the 30–34 age group is shown in both tables.

There is an increase in the total notifications of 1974 over 1973 of 20·5% for males and 46·1% for females representing an overall increase of 28·1%.

VENEREAL DISEASE—W.A., 1970–1974

SEX DISTRIBUTION

Disease	Male					Female					Total				
	1970	1971	1972	1973	1974	1970	1971	1972	1973	1974	1970	1971	1972	1973	1974
Syphilis—															
Primary	77	119	106	133	205	54	72	106	71	109	131	191	212	204	314
Secondary	14	25	17	32	43	9	25	19	43	83	23	50	36	75	126
Tertiary	....	5	2	2	9	3	6	5	4	11	3	11	7	6	20
Congenital	1	1	2	4	....	1	1	1	1	2	2	2	3	5	2
Total Syphilis	92	150	127	171	257	67	104	131	119	205	159	254	258	290	462
Gonorrhoea	954	956	1 069	1 199	1 392	212	280	398	458	640	1 166	1 236	1 467	1 657	2 032
Granuloma	2	2	2	2	1	1	....	....	....	....	3	2	2	2	1
Chancroid	....	1	1	1	5	....	....	....	2	1	....	1	1	3	6
Total Venereal Disease	1 048	1 109	1 199	1 373	1 655	280	384	529	579	846	1 328	1 493	1 728	1 952	2 501

Reasons for Attending Male V.D. Clinic

	No. of Cases	%
Syphilis	65	2·12
N. Gonorrhoeae	705	23·01
N.S.U.	907	29·61
Herpes	111	3·65
Warts (Venereal)	63	2·05
Balanitis	7	0·22
Other Diagnosis....	452	14·75
No diagnosis made	753	24·56
	3 063	100·00

It can be seen that non specific urethritis constitutes 29·6% which is 4·5% more than the combined percentages of both gonorrhoea and syphilis. N.S.U. is not a notifiable venereal disease.

Community Health Services

We extend our gratitude to the Community Health Services for their notable co-operation during the year 1974. Not only to Dr. Lawson Holman as director but to the medical officers and public health nurses in all areas of Western Australia. It is largely due to the efforts of this department that contact tracing and surveys into venereal disease in country areas have been possible. They have contributed to the treatment of an increased number of patients and through their contact tracing, to the treatment of a large number of contacts.

It is only by the increased application of treatment of the acute case, to contact tracing, and to health education that any impact on the incidence of venereal disease is likely. The medical and nursing staff of the Community Health Services have applied themselves diligently to all three of these aspects, often in remote areas of the State.

During the year 1974 lectures were given to many different groups. These included 4th year medical students, School of Nursing Royal Perth Hospital, Post Graduate School of Nursing, the Public Health Nursing Diploma, Teachers Training Colleges and others. A week of lectures and films was conducted to 3rd, 4th and 5th year students at the Geraldton High School and Colleges. Appreciation must be extended to the headmasters and headmistresses and the Health Education Council for co-operation in these areas.

Investigations into the viral studies as applied to venereal disease have continued at the Virology Department of the State Health Laboratory Service. The co-operation of Dr. Mackay-Scolley has been greatly appreciated, as has that of the staff of the microbiological and serological sections. It is only due to the enthusiasm of these members of staff that various surveys have been possible, and that routine work has been enhanced. The results of these investigations are contained in the appropriate section of this report under State Health Laboratory Services.

During the year a liaison has been maintained with Health Education Council. Mr. C. O'Docherty assisted with a programme on venereal disease education conducted at the Geraldton High Schools and Colleges. It is obvious that the effect of health education could be more effective in the venereal disease field if more money and hence, more staff could be apportioned to it.

There is at present no indication of a breakthrough in the control of venereal disease. Efforts must be increased to treat adequately and effectively all cases of venereal disease. Investigation of each patient is paramount, if this treatment is to be effective. Contact tracing methods have to be studied and improved. Health education has to be intensified and their field enlarged to cope with the problem of informing those age groups most at risk, that treatment facilities are available and that such facilities are free of charge and confidential.

Finally the medical and nursing professions must investigate, treat and continue contact tracing in an endeavour to control the escalating problem of venereal disease.

Appendix VI

Community Health Services

Director: Dr. Ann Troup, M.B., B.S., D.P.H.

For Community Health Services, 1974 was a year of continued growth. Staff numbers were increased and there was further development in the level of expertise and in the range of activities. The Branch's targets and aims were again upgraded.

Progressively more responsibility was given to regions for developing priorities within these targets and aims in relation to local needs.

To this end, a system of regular " Regional Conferences " was used. As these matters of policy and principles of implementation were decided by all the Regional Medical Officers and Regional Nurse Supervisors, these conferences have been held in Perth on an eight weekly basis, which has left regions depleted of senior staff. Consequently, they will continue in 1975 on a quarterly basis.

As in previous years, internal assessment of performance was by a questionnaire based on our targets and aims.

NUTRITION

1. An improvement in nutrition was noted in most areas (32). Twelve areas reported no improvement. This does not necessarily mean that nutrition was unsatisfactory. In Mullewa, for example, there is evidence of adequate nutrition for several years now.
2. Although most malnutrition continues to be undernutrition of one sort or another, obesity has been noted in up to 80% of adults. This is particularly noticeable in city dwellers.
3. Two areas report that all their clientele remain deficient in total calories. These are Wyndham and Fitzroy Crossing, where social problems have been extreme due to recession in the cattle industry.
4. These two areas with Jigalong and East Perth, noted the most severe protein lack with 70% or more of the client population failing to achieve or maintain the targets set.
5. However, only one case of kwashiorkor was reported to our staff. That case occurred in Moora.
6. Iron intakes were perceived to be deficient in seventeen of the areas. Serum iron results from audit to date would suggest that this is an underestimate. Overall results tend to be well below European normals.
7. Vitamin A intakes were noted to be deficient in twelve areas. However, supplementation was provided statewide wherever need was suspected. Considerable care was exercised to ensure that overdosage did not occur.
8. Similar problems were seen with ascorbic acid, vitamin B12 and folic acid.
9. Five cases of marasmus were noted; two in the South West Region, three in the Kimberley.
10. Approximately one hundred cases of grave malnutrition were reported. Again it is noteworthy that a third of these were in the metropolitan area with poverty ignorance and apathy regarded as the underlying cause. The majority of cases occurred in the Kimberley.
11. A table follows giving details of a survey of the nutrition status of very young children and their mothers in the Jigalong area.

Table 1

SUMMARY TABLE OF NUTRITION AND HEALTH STATUS 0-5 YEAR OLD CHILD AND THEIR MOTHERS
JIGALONG AREA

Age in months	0–5	6–11	12–17	18–23	24–29	30–35	36–41	42–47	48–53	54–59	5–6 yrs.
Number of children— Total 66	8	9	7	2	8	5	7	4	4	3	9
Type of Food— Average Number of Times taken Per Day											
Breast Feeding	5·00+	4·00+	5·00+	0·50+	0·60+	2·00	3·00+	1·25	....	0·33	....
Sunshine Milk	0·50	0·33	0·14	0·50	0·10	0·20	....	....	....	....	....
Orange Juice	0·12	0·33	0·40	1·00	0·25	0·80	0·60	0·50	0·75	1·00	0·66
White Tea & Sugar	....	0·66	2·00	2·50	2·75	2·40	3·00	3·00	2·00	3·00	2·66
Cereal	0·12	0·50	....	0·50	0·12	0·20	0·14	....	0·25	0·33	0·10
Damper, Jam & Butter	0·12	0·50	1·40	2·00	2·24	1·40	2·30	2·75	2·25	2·33	2·00
Lamb/Beef	0·25	0·66	1·30	1·00	1·25	1·40	1·14	1·50	1·75	1·33	1·50
Chicken	....	0·33	0·30	0·50	0·12	0·40	0·30	0·25	....	....	0·15
Kangaroo	....	....	....	....	0·15	0·20	0·14	....	0·25	....	....
Vegetables	....	0·50	0·70	1·00	0·60	1·00	0·90	1·00	0·75	0·33	1·10
Potatoes	....	0·50	0·70	1·00	0·60	1·00	0·90	0·50	0·75	0·33	1·10
Fruit	....	0·10	0·30	0·50	1·25	....	1·00	0·75	0·50	1·00	0·34
Sweet Biscuits	....	0·66	1·00	2·00	2·50	2·00	2·00	4·00	3·00	....	1·50
Stew Juice	....	0·33	0·30	....	....	....	....	....	....	....	....
Custard	0·12	0·33	0·30	....	0·15	....	....	....	....	....	....
Egg	....	0·10	0·60	....	0·25	....	0·14	0·50	0·25	0·33	....
Soup	....	....	0·14	....	....	....	....	....	....	....	....
Spaghetti	....	....	....	....	0·15	....	....	....	....	....	0·10
Potato Crisps	....	....	0·14	....	....	0·40	....	....	0·25	....	....
Ice Cream	....	....	0·14	....	....	....	0·40	....	....	....	0·33
Children— Percentages											
Weight less than 80% of standard	13	....	42	50	39	....	....	....	....	....	....
Height less than 80% of standard	39	11	....	....	....	20	....	....	....	....	....
Arm Circ.	13	....	....	....	....	....	....	....	....	....	....
Diarrhoea	....	11	14	....	....	....	....	....	....	....	....
Cough	25	55	56	....	39	60	70	....	50	....	....
Fever	....	....	....	....	....	....	....	....	....	....	....
Eyes	....	22	....	....	....	....	....	....	....	....	....
Ears	....	....	....	....	....	....	....	....	....	....	....
Sores	....	....	28	....	13	....	14	25	25	....	....

Mothers—

Total number of mothers	57
Weight for less than 90% of standard	3
Child mortality with 1–3 children	10

HEALTH EDUCATION AND HYGIENE

All areas continued to regard this as a priority item.

1. Consensus groups continued to be established and operated in more than thirty areas. At least 1 500 clients were involved in such groups.

   The range of subjects discussed reflects the wide concerns of our clients about health problems. Some topics covered include dogs, employment, grooming. By far the most common subjects were nutrition, antenatal care, basic hygiene and control of infection and infestation. Venereal disease was also an area of concern.

2. Client demonstrations were held in all but five areas. Subjects covered include:—

   Use of textured vegetable protein
   Food preparation
   Hygiene in artificial feeding
   Cooking
   Infant feeding
   Child care
   Chest percussion
   Control of pediculosis
   Control of Scabies
   Prevention of impetigo
   Care of simple injuries
   First Aid
   Care of eyes
   Care of ears
   Ear toiletry for chronic suppurative otitis media
   Trachoma
   Antenatal care
   Post natal care
   Sewing
   Budgeting
   Ringworm
   Accident prevention
   Care of clothes

   This is a representative list, but is not comprehensive. More than two thousand clients participated in this way.

3. Further, all areas geared all their activities to teaching. As a result many thousands more people have been reached in some way.

4. A total of 168 community exemplars were identified. In most instances a means was found to involve these individuals in health education.

5. Pre-school Education of some sort is available in almost all areas where Community Health Services staff are employed. Increasingly, this is available on a formal basis in rural areas, so that community Health Services staff are able to withdraw from conducting sessions.

   In the metropolitan area availability of Pre-school continues to be a problem. All our centres are geared for use in initiating play-groups.

   Activities associated with Pre-school range from conducting sessions as at Looma, to paying an occasional visit to an already established Pre-school. In the Goldfields and South West areas, Community Health Services sisters may provide first aid; a daily hygiene check; classes including demonstration for both mothers and children in hair care, hand washing, etc.

   Nutrition education and supplementation occurs in a number of Pre-schools, particularly in the Kimberley and South West.

6. Many other health education ventures were undertaken. Of particular interest was the establishment of an Aboriginal men's group in the Fremantle area. This has led to external and internal painting of houses. State Housing Commission have lent assistance and expertise, provided equipment etc. Such things as simple fly traps have been devised and manufactured by this group of clientele.

   Many areas have reported interest in, and education on, venereal disease.

Involvement in school project classes has been very constructive, e.g. in Halls Creek young children from the project class participate in the running of Child Health Clinics. A number of such project classes have involved elementary first aid and simple home nursing care.

7. In spite of these many and varied activities, as many as 40% of the clientele in some areas remain ignorant of the most basic hygiene practices. A great percentage fail to practise what they know. Although this reflects the state of affairs in the general community, two other factors are cited by the staff as creating difficulties; *viz*

    (i) lack of facilities, e.g. showers are not available at Warburton.

    (ii) alcohol.

IMMUNISATION

Community Health Services continue to assist people to use available Services for immunisation.

Correlation of records from a variety of providers of immunisation remains difficult, particularly in the South West and Metropolitan Regions. There is probably a tendency to underestimate the number of people who have achieved full immunisation status in those regions.

Tetanus

(i) As in previous years the number of adults known to achieve adequate immunisation status reflects the availability of the total community to the field staff. Only two areas, Kalumburu and Beagle Bay, report that 100% of adults achieved full status. 2 358 adults in the State were known to have achieved full status as a result of Community Health Services activity.

(ii) Pregnant women fared better than most adults. With the possible exception of Kununurra, almost all in the Kimberley achieved full status.
The Northern Region recorded a similar satisfactory achievement.
Adequate information was not available from the other regions.

(iii) Of clients aged 3-20 years, 3 226 were known to have achieved full status. Percentages up to 100% were recorded in some communities.

(iv) Very pleasing results were achieved in the three months to three years group.
2 788 of this age group were known to have achieved full status. The total number was reached in many areas.

(v) A total of 10 989 tetanus injections were given or promoted by staff in 1974.

(vi) Two cases of tetanus became known to staff in 1974. One of these, an elderly pensioner from the South West, died of his illness.

Diphtheria

Clients 3 months to 6 years with full status	2 587
Injections given or promoted in 1974	8 027
Cases in the clientele	0
Deaths	0

Whooping Cough

Clients 3 months to 6 years with full status	1 389
Injections given or promoted in 1974	4 603
Cases in clientele in 1974	22
Deaths	0

Measles

Clients 1–10 years with full status	1 319
Injections given or promoted in 1974	1 583
Cases known in clientele in 1974	163
Deaths	0

Polio

Clients 6 months to 15 years with full status	3 465
Clients over 15 years with full status	2 534
Immunisation given or promoted	8 244
Cases	0
Deaths	0
Contractures	0

BCG

Clients 0-5 years with BCG cover (N of 26 degrees) 876. This means that the vast majority of children in this group were protected. Only two Aboriginals who had previously had BCG were known to have contracted either Hansen's disease or tuberculosis.

Eleven cases of tuberculosis in Aborigines were known to our staff in 1974.

They were involved in follow-up of eight cases in Caucasians.

511 BCG's were given or promoted in 1974. This includes considerable activity in the South West.

Smallpox

239 smallpox vaccinations were given in Dampier, following a series of landings by Indonesian fishing boats in the vicinity of One Arm Point.

Rubella

736 of female clients of high school age were known to have immune status.

377 immunisations were given or promoted in this group.

Less than 20 cases with no complications were reported to have occurred within Community Health Services clientele.

The very early sexual activity of many girls in this group creates concern over potential hazards of immunisation.

Influenza

A total of 3 802 immunisations were given or promoted by staff in 1974.

Other Activities in Regard to Immunisation

Approximately 200 doses of gamma globulin were given to individuals exposed to hepatitis.

Survey of the total population immunised in the suburb of Lockridge was undertaken to assist local authority with planning of services.

CONTROL OF ENDEMIC DISEASES

Leprosy

The regular clinic and other surveillance methods were maintained in the Metropolitan area. Some new cases among migrants came to light. The regional medical officer in the Kimberley is medical superintendent of the Derby Leprosarium and is also responsible for case finding activities and treatment in the north of the State. Appendix 18 shows that 11 new patients were admitted to the Leprosarium for treatment.

Yaws

Seventy two seropositive cases were known in the Kimberley. Of these forty three required treatment. A report on treponemal serology (Table 1) in that region follows.

Hookworm and other gastro intestinal parasites

Hookworm transmission remains confined to the Kimberley area. 2 520 treatments in all were given in this area. Particular emphasis was placed in Kununurra where the rising water table has increased the hazard. Transmission has not yet been satisfactorily controlled. Giardia Lamblia is still the most common parasite requiring treatment.

Trachoma

A total of 22 277 people were examined for trachoma. This includes non-Aboriginal school children in some areas.

Recorded treatments totalled 4 322. This number includes—

(i) blanket treatment in areas such as Fitzroy Crossing.

(ii) whole household treatment as in the metropolitan area.

The total number of cases would be considerably less.

Gastroenteritis

Campaigns to increase breast feeding; to teach fly control, food hygiene and storage, continue. Deaths among clientele due to gastroenteritis known to our staff totalled 8. Collection of such information remains extremely difficult.

Table 1

TREPONEMAL SEROLOGY (i)

KIMBERLEY STATISTICAL DIVISION 1974

Sex	Age Group (ii)	STD Test Only (S.T.S.)		STD and Specific Test (iv)	Specific Test Only (v)	Total
		WR &/or V.D.R.L. (iii)	V.D.R.L. Diluted			
Male	10–19	....	3	6	1	10
	20–29	2	....	13	4	19
	30–39	2	2	11	4	19
	40–49	1	2	6	....	9
	50 and over	4	1	22	3	30
	Age not specified	2	1	3	4	10
	Total Male	11	9	61	16	97
Female	10–19	3	1	9	1	14
	20–29	9	....	13	5	27
	30–39	4	....	16	8	28
	40–49	2	....	14	2	18
	50 and over	10	1	8	6	25
	Age not specified	6	1	6	....	13
	Total Female	35	3	66	22	125
Age nor sex specified		1	1	7	3	12
Total positive serology		47	13	134	41	234

(i) No separate figures for Aboriginal and European races.

(ii) Years.

(iii) V.D.R.L. Undiluted.

(iv) Reiter Protein Complement Fixation (R.P.C.F.) and/or Fluorescent Treponemal Antibody F.T.A.

(v) R.P.C.F. and/or F.T.A.

Monilia

183 cases of oral thrush were recorded and treated.

Tuberculosis

Close liaison with Perth Chest Clinic continues. Community Health Services figures will to some extent overlap those of the T.B. Unit.

215 Mantoux Tests were performed.

512 BCG's were given or promoted.

Anaemia

The significance of this problem varies widely. The search is most intense in the hookworm endemic areas. 8 318 examinations for anaemia were made.

417 individuals received specific treatment for anaemia as a result. It should be noted that non-specific treatment in the form of nutritional supplements, e.g. Australian Milk Biscuits, were distributed far more widely.

Meningitis

Sixteen cases of meningitis were known to our staff of which several were fatal.

FAMILY PLANNING

Education was largely given by personal discussion with interested clients, but an increasing number are reached in group discussions and even public meetings.

204 clients are known to have received personal advice.

The mode of family planning very frequently reflects the practice of the local doctor.

In one town in the South West 29 women had some form of IUD; none were using the pill.

Totals for various methods:

Pill	IUD	Sterilization	Depot Injection
129	159	128	4

A repeated concern for staff was that a motivated client was easily discouraged by a disinterested medical practitioner.

DEPENDENCY PREVENTION

As in previous years, a campaign continued to prevent total dependency where disease was established.

In response to the question " how many cases did you keep out of hospital ? " Our staff could identify 330 individuals who would otherwise have been admitted. Their total estimates approximate to two bed days saved per field nurse for the year.

SPECIFIC MEDICAL AND SOCIAL PROBLEMS

Active Case Finding

Most activity of course, was centred on Aboriginal clients and figures cannot be regarded as rates

Total Cases Detected

	Aboriginal	Non-Aboriginal
Diabetics	50	2
Obesity	221	521
Abnormal child development (excluding nutrition)	120	65
Syphilis	551	61
Gonorrhoea	388	184
Other VD (monilia)	58	8
VD Case follow-up	330	35
Contacts traced	273	43
Hypertension	81	29
Urinary infection	167	80

These figures on Venereal Infections particularly require comment. For example, 551 cases of syphilis may include the same itinerant individuals reported from as many as ten different centres. Since our target population is so mobile this type of apparent over reporting is common.

Minor Illness

Treatments given—39 530

These treatments varied considerably depending on other available health care resources. Many dressings to minor abrasions, cuts and boils are included.

In almost every instance the treatment was used as a teaching opportunity. Many of the treatments were self administered under supervision. At least 741 of these are known to have progressed to hospital admission in spite of this treatment.

It was noted that the child requiring admission for respiratory infection tended to be a recidivist.

Alcoholism

Staff generally felt the heavy drinking stemmed from social problems. In small centres they have noted that AA groups are flourishing.

Intermittently during 1974 a group of people interested in Aboriginal alcohol problems met in Salvatori House, but these meetings were discontinued as there was no productive outcome.

Gambling

As a pastime, this causes few problems in a relatively isolated community such as Jigalong where the money exchanged is largely retained by the families involved, and NO ONE starves as an outcome. It is, however, a major problem in areas with several handy TAB outlets.

Child Pregnancy

Education of groups in and out of school, as to sexual responsibility, use of family planning techniques and their availability occurred in most areas.

However, at least fifty nine pregnancies occurred in girls under sixteen years of age. In order to achieve a satisfactory outcome, every effort was made to ensure satisfactory antenatal care and to improve the family support structure.

Neglected Children

As in the past, the policy was adopted that families should be assisted to retain their unity wherever possible. Many discussions were held with officials of the Community Welfare Department to this end. Most clients prefer to have agencies operating in consultation over their problems rather than otherwise. This has enabled some very productive case conferences to be held.

Dental Health

The appointment of a dentist to Community Health Services was not achieved in 1974.

Staff are unanimous in stating their problems in encouraging clients to perceive dental health as a priority.

Particular thanks are to be extended to Perth Dental Hospital where in 1974, Aboriginal clients' problems were increasingly recognised and appropriate assistance given.

In spite of the subsidies on dental care, some families still find costs are prohibitive. School Dental Services have been helpful in overcoming this problem. From a number of areas, tribute was paid to the help of Dental Health Services, Mr. Bremner and Mr. Alderdyce being repeatedly mentioned.

Antenatal Care

Details of antenatal care, as in the past, show that a tremendous contribution has been made towards satisfactory antenatal care. In the majority of areas, 100% of clients who were pregnant had antenatal care. At least 722 clients attended antenatal clinics regularly. It is probable that more people should be included in this figure since no accurate statistics were available from certain areas, such as Esperance where a Public Health Nurse had not been incumbent throughout the entire year and where there had been some difficulties in maintaining staff supply during the year.

A trend towards earlier presentation becomes apparent when it is seen that although some of them did not attend regularly, at least 757 women were known to have presented during the first eight months of their pregnancy.

The fact that only 567 individuals did not attend a post-natal clinic, may in many instances reflect the lack of such clinic; although in many instances the client finds this troublesome and just requires education in the value of post-natal clinic care.

Of very profound concern was the fact that Wasserman or other tests for syphilis, is not a routine part of antenatal care in all areas. This was particularly evident in the South Western part of the State and may reflect difficulty in access to laboratory services or difficulty in recovery of patients' accounts for such tests in the past. Since our nurses believe that the number of congenital syphilitics born in this State may have been as many as 14, it is evident that routine WR should be a required procedure for all antenatal patients. The fact that 17 women were found at delivery to have gonorrhoea would suggest that all venereal infection should be intensively searched for during pregnancy.

Opthalmia Neonatorum

Twenty six deliveries were known to have occurred outside hospital; in three of these the reasons to have been tribal or when people knowingly refused proper antenatal care. In every other instance, the cause was premature and/or precipitate delivery; although in many instances this was further complicated by difficulties of transport and evacuation, it would appear that there is a great need for more attractive hostel type accommodation to be available at or near certain regional hospitals so that antenatal patients may be enabled to be conveniently located at the time when their babies are due rather than be involved in last minute dashes from remote areas.

Of the mothers who did not breast feed to six months, a variety of reasons were given. The reasons are similar to those given in our previous report and the chief reason remains separation of mother and child during the hospitilisation of one or the other, leading to failure of lactation. Another less important reason, but one that seems to be gaining in significance, amongst young mothers, is the tendency to move towards the Europeon method of bottle feeding for all children because it is believed to provide convenience to the mother. Several very young mothers whose mothering skills were far from being developed, preferred not to breast feed their children in order that they would be able to leave the children with relatives and enjoy their own mobility.

From our reports obtained on the deaths of Aboriginal children under one year of age, it would appear that failure of breast feeding is a very important contributing factor; lack of maternal attendance at an antenatal clinic would appear in many instances to be another. There is of course, the correlation between maternal incompetence, either as a result of social factors or emotional factors in the mother, her failure to participate in health care and the ill-health of the child, which may predispose to death.

SIGHT, HEARING AND LIMB CONSERVATION

Sight

In all the State, a total of 8 206 people had visual acuity tests. A large majority of these were, of course, school children in the areas in which Community Health Services is responsible for School Medical Services. Subsequently, after testing, 567 individuals were referred either for glasses or specialist attention of some sort and ultimately, all people who required glasses did, in fact, obtain them this year.

Many areas still felt disadvantaged in that they had difficulty in obtaining access to specialist eye opthalmic care without referral to remote Perth. In many instances a visit of an Optometrist would have also been welcome.

Audiometry

Audiometry was performed on a total of 4 621 individuals of whom 206 were referred for further specialist treatment or hearing aid. Five individuals were noted to have not obtained the hearing aid which was believed necessary for them. In all instances, this was due to the individual's nomadic habits which prevented him or her from maintaining appointments for testing and measurement.

A major part of the Public Health Field Nurses' workload continues to be supervision of ear toiletry for the child with a chronic tympanic perforation. No less than 2 329 such individuals received ear toiletry during the course of the year. It is a matter of major concern that, although most of these children in the natural course of the illness will recover and achieve adulthood with a remarkably small amount of hearing loss, they frequently have intermittent very severe hearing loss during their childhood illness, and this may be a grave intellectual handicap. In addition, of course the discharge quite frequently has an offensive odour which causes some social problems for individual children. The high incidence of this problem is reflected in hospital in-patient figures where it is included under conditions of the nervous and sensory organs.

Most areas outside the city noted that they were disadvantaged in receiving care from an ear specialist. Many felt that a three monthly visit would be of some value.

Limbs

A total of 691 individuals received preventative treatment or advice in relation to their limbs. This of course, included many individuals discharged from the Leprosarium with neopathic limbs who required considerable care and advice in the prevention of complications in relation to their limbs. In spite of care and advice, a total of 63 individuals were admitted to hospital for further care of their particular problem. One very difficult group of these included a number of alcoholics with pheripherneuropathy who had proceeded to infection and ulceration. On the more optimistic side, 15 of them were individuals who were seen by the Orthopaedic surgeon who went to the Kimberley on behalf of the Community Health Services in 1974, and were admitted for particular orthopaedic procedures. The value of this innovated visit by an Orthopaedic Specialist to the Kimberley for reconstructive work on Hansens patients, would appear to be tremendous. There was very gratifying co-operation by the Medical Department Physiotherapist and Radiographer in order to provide this specialist service and our thanks are due also, to the RFDS, who provided patient transport in many instances. This activity will be continued into 1975.

PENSIONERS

1 534 pensioners of Aboriginal origin are being cared for by our staff who may in general, do this by involvement with local organisations and/or other nursing services, such as Silver Chain. Meals on Wheels have participated in certain areas where they were operating. Service groups such as Lions Club, were noted to be of particular help within the community generally. Very significant in grossly depressed areas around East Perth was the value of religious, charitable organisations. Liaison with them in relation to the Soup Kitchen, run by the Daughters of Charity and the Welfare Clothing Store, run by the Church of Christ, are two examples.

The particular care arranged for pensioners varied tremendously. In the Kimberley, via the RFDS, a three monthly check of old aged pensioners was instituted to ensure their optimum health. Considerable liaison occurred with Dr. Lefroy, whose Extended Care Services for the aged were appreciated in all areas, where sisters had contact with them. In some instances, mobilisation of the community and family resources provided the extra care that pensioners needed, such as assistance with shopping or simple home nursing.

SCHOOLS

School medical examinations were performed North of the 26th parallel. In all, 8 841 children received general examination at school. In addition, many Western Australian school children were checked at least once for nits or lice. In many instances intensive campaigns were conducted. In this respect, as in many others, staff have mentioned their gratitude to the Community Welfare Department Homemakers for the assistance received. Tribute is also paid to the assistance provided by health surveyors in many areas in the course of this exercise.

Sisters were involved in teaching in schools with special groups. Most particularly on health related topics such as First Aid, Hygiene, Health Services here and elsewhere. They provided reinforcement for many of the correspondence classes conducted by Child and School Health sisters and particularly in areas where there are a number of project classes. Some of the children were actually involved in health care delivery as part of the school project. For example, boys were involved in making First Aid kits for families, or girls were involved in doing dressings or running a Minor Treatment Clinic themselves. In another school, our sister assisted with camping out and provided bush hygiene and teaching at the same time.

LIAISON

One of the most critical factors perceived in advancing Aboriginal Health, is seen as adequate liaison with all agencies whose work may affect health, which of course applies to the white community also. Particular thanks, I believe are due to the staff of the Aboriginal Affairs Planning Authority, in our Department of Aboriginal Affairs, whose work on the Aboriginal Affairs Co-ordinating Committee at all levels, is most valuable.

Liaison at the local level is quite as important as more central liaison. The list of people with whom our Sisters have worked in various areas involved literally thousands of individuals and groups. To all of those people, we would extend our very real thanks, and especially to Child Health and Silver Chain Sisters, and to those who maintain Radio links.

Another continuing activity has been the involvement of camp nurses in the provision of immediate care to individuals. The Camp Nurse is provided with sufficient material to be able to treat minor cuts and ailments and assist with ear toiletry and generally to perform many of the functions that one would expect the well educated European to carry out in terms of health care in their own household. A total of 52 individuals are involved in this activity. In many instances men have been found to be very acceptable and indeed preferable in some groups to females.

RECORDS AND MEDICAL AUDIT

The move towards Problem Oriented Record Keeping was initiated in the latter part of 1974. It is intended that a complete changeover to Problem Oriented Record Keeping for individuals will occur during 1975.

The Medical Audit which concentrated on the Eastern Goldfields in 1974 has now reached some 969 individuals. A regular collection of anthropometric data on children, aged under 60 months, was initiated. Surveys were done in various local areas to determine local incidence of such illnesses as Trachoma; Hansens Disease surveys continued.

The following is an extract from the report of Dr. Sue Chowrryappah, the regional medical officer for the Goldfields:

Analysis of Results

> A total number of 786 clients, both full blood and part Aboriginals, were examined on the survey in the Goldfields. The percentage of males was 45·04% and females 54·96%. The largest number fell into the 5 to 9 years category, i.e. 167 clients or 21·25%. The ratio between male and female in each of the age groups showed that more females were examined, this being most marked in the age groups of 15–19 years, 20–29 years and 30–39 years. The reason being that this age group were often embarrassed to have an examination or that they were out working on stations. In spite of evening sessions, it was hard to get the working ones in, and most of them were in too intoxicated a state to co-operate in an examination. In Norseman, where we had the support of the local Church of Christ Minister, we had three successful night sessions, inebriated ones and all.
>
> On the whole, the response and attitude of the people was friendly. At first there was often a little shyness and resistance at the idea of the total examination, especially at Laverton, where they thought we were only more interested in V.D. checks—(one of the GC +ve cases from Leonora had treatment in Laverton!) but once they realised more fully what we were about, the response was good.
>
> While many older people have been apprehended for drinking and fighting, a number of the teenage boys had been involved in breaking and entering episodes, especially with cars. One of the young men had even driven to South Australia in a stolen car.
>
> Only the tribalised groups were sure of their sections and sub groups This information was harder to get from the young teenagers from tribalised areas, even if they knew their own group, they were not sure what their parents belonged to. This was not due to shyness or inhibition on their part, but due to a genuine ignorance of the facts. Was most amused when one of the teenage girls from Warburton tried to find out the sections of the boys from the Aboriginal Youth Hostel. Nothing like combining Western and Aboriginal modes of matchmaking.
>
> The older initiated men who were away from the tribal settlements, or who were the last of their tribes, were prepared to talk about initiation rites and tribal customs but as we moved further north, greater secrecy was observed and information as to circumcision, subincisions and blood letting had to be obtained in a rather round about manner. In spite of this secrecy, there was no actual withholding of information and we managed to have good understanding with the men as to what information was needed. Am inclined to believe now, that it is only the anthropologists who make such an issue over these so called " secret matters ", and that the people themselves realise that as we are a medical team who respect their views and customs and are basically in the field to help them, are willing to give us information that is required medically.
>
> Penetration of the nasal septum appears to have died out, though avulsion of the teeth is still done.

Blood letting scars were usually on the left side, the right hand obviously being used for the exercise but some individuals probably higher up in the law, had scars on both arms.

Spear wounds were a common feature and were exhibited with great relish by both men and women. Some of them could boast of up to 12 to 15 scars! I was amazed to find that in spite of the high incidence of spear wounds, there wasn't a single foot drop or palsy as a result.

The women appeared to have very few rites apart from markings on the arms and thorax and " grief injuries " on the head and forehead. There were no signs of the puberty rites followed by the Amata women.

The custom of not mentioning the names of dead individuals was more prevalent among the people north of Kalgoorlie than among the more urbanised ones South of Kalgoorlie. This often made the task of getting ordinate numbers of the people a difficult one—they more often than not forgot to mention the deceased members.

Primary and Past History

This information was the hardest to obtain. A number of mothers had no ideas of birth weights or milestones of their children, and hospital records in the smaller areas leave much to be desired.

Examination Protocol

Trachoma as expected was prevalent, the sequalae of the condition being more common among the older people. The incidence of active trachoma among males was 24·01% and females was 25·01%.

No cases of optic atrophy due to methylated spirits was seen.

Infected ears were common in the age groups 2-14 years, 10·73% in males and 6·7% in females. Swimming in the local creek beds certainly did not help the situation.

Nasal discharge was common among the children, many of whom still haven't learnt the need or see the purpose in blowing noses. This often accompanied by excoriation. Tonsils were hypertrophied, but not infected. One case of active rheumatic fever was found and one with past history of rheumatic fever.

In spite of the drinking habits of the people, only three had any evidence of enlarged livers and disarranged liver function. They were all part Aboriginal. Only 0·88% had Serum Bilirubins above 1 and 1·88% with Serum Albumins above 5. Do Aboriginals have special detoxicating enzymes, or do cheap wines have less effect on their livers than others?

The people were well fed, the women leaning heavily towards obesity. Pot bellys were a common feature among children, there being a definite weakness in the abdominal wall of these children. The laxity of the abdominal walls and ventral diasthisis, lessening as the child grew older. In spite of the obesity of people, only 1·59% had abnormal cholesterols, 55% of this number being males.

The haemoglobin levels of the people ranged from 8-21 gms—the greater number being between 11-14 gms. Of the 259 males seen, 35·52% had haemoglobins between 10-12 gms, while 64·48% had haemoglobins above 12 gms.

The M.C.H.C. levels corresponded, only 1·13% of the males had levels below 30, while 93·96% had levels about 32. In the females, 1·25% had levels below 30 and 89·68% had levels above 32.

The Serum Iron results, however appeared to be an absolute contradiction of these figures. In the males only 1·34% had serum levels above normal while 37·0% had levels below normal. Similar findings were seen in females i.e. 2·64% above normal, 57·56% below normal. These conflicting results could be due to varied reasons—(1) possibly that such a finding, i.e. low levels of serum iron are normal finding among the Aboriginal race or (2) due to nomadic characteristic, storage levels are not built up and they cruise along on basic body requirement, thus unable to face crises caused by infection or trauma.

Serum Folates were also remarkably low among these people. 70·45% of the males had levels below 6, 29·55% were within normal. In the females, 73·29% were below normal, 26·40% within normal and 0·31% above normal. There was no evidence of resulting megaloblastic Anaemia seen.

Anthropometric results showed a definite shift toward the 80·90% of standard. There were no children in the 0 to 60 months found below the 70% of standard group. Serum Protein levels were well above the normal. There being 95·53% of males above normal—nil below normal. In the females, 97·74% were above normal, nil below normal.

I would appreciate Vit. A and Vit. C levels being done on a regular basis to complete the parameter of tests for nutritional standard.

Vit. A (Serum Carotene) studies were ordered in children who I felt had clinical evidence of early xerosis; there were no symptoms of night blindness. This history may not be reliable, however, as the patients were all children and might be a good reason for further investigation i.e. dark adaptation tests into the condition. Unfortunately up to date all the results are not to hand. Of the 32 results known, 20 had low Carotene levels, and 12 had levels above normal of the latter, only 5 had levels above 100 mg, the others were border line.

Serum Calcium levels were well with normal limits, only 8·4% of males and 8·44% of females had level of 9.

A number of older clients had spongy tender gums, often unaccompanied by pyorrhoea, a strong reason for adequate evaluation of Vit. C., especially in the areas where vegetables containing Vit. C are scarce. Even potatoes and turnips are not commonly eaten in some areas.

Blood sugars were done only on 45 clients, i.e. those who were known diabetics, or had a family history of diabetes. 64·44% of these had raised blood sugars.

Collection of faeces specimens still continues to be a problem, especially among tribalised Aborigines. Of the 238 specimens done, 34·03% had Giardia, while 32·77% had H.Nana. Besides the odd Vermicularis there was little other pathology.

All clients with abnormal findings were referred back via the sister to the local practitioner. A more detailed analysis of the findings still needs to be done.

While it has been an advantage to have 2/3 of the area " surveyed ", we can't help wondering whether it might not have been better to have arranged the exercise when all the rough edges had been smoothened, instead of being in some way an experimental area.

In spite of the setbacks, the team adapted superbly to the often difficult and unaccustomed circumstances.

My thanks go out to Sisters Robinson, Rucks, Nurse Narkle, Messrs. Fred Collard, Andy Collard, Narkle, Kickett and Thorn (the Field Assistants) and Mrs. Jean Collard for their unflagging energy and cheerfulness throughout the survey, to the staff of the State Laboratories for their co-operation during the whole period and to Mr. Altimira for the help in organising the facilities.

TRAINING

A variety of training programmes for clients, community and staff progressed through the year. The most worthy at the moment has been the In-Service Training for Aboriginal Assistants in the metropolitan area, under the auspices of Sister Joan Greenhalgh.

A number of Assistants attended and successfully completed the Aboriginal Liaison Officers' Course at the Institute of Technology for the first time this year. Other Assistants achieved a St. John Ambulance First Aid Certificate. In addition, the weekly block training day has proved of great help to all the staff. It is hoped to be able to upgrade training in areas remote from Perth during 1975.

VISITORS

We have had many visitors from all parts of the world during the year. There has been a little rumble from field staff in certain areas that appear to have particular tourist value, that the number of visitors has at times been disruptive of the work process. In one particular town there were visitors to the area continually for three months, so that every day at least one person was entertaining a guest. This has been a major difficulty, which I believe, is not easy to overcome in that the importance of us sharing knowledge and skills cannot be over-estimated. However, as a matter of policy, we believe it is important that our clients, regardless of race, or background, have the right to dignity and a certain degree of privacy, rather than being an object of passing interest to the casual visitor. We believe that visitors who wish to have the work demonstrated to them should in fact, recognise and respect these rights of our clients.

CONCLUSION

At the close of 1974, the Director, Dr. Holman, became the Acting Deputy Commissioner of Public Health. Although paying tribute to his great skill and the way in which he has developed and lead Community Health Services, he will be greatly missed.

The Plans for 1975 include the continuation of the Medical Audit; more intense anthropometric screening, the implementation of the Problem Oriented Record System and a progressive move towards training more Aboriginal staff so that more Aboriginal people will be able to take full responsiblity for their own health, rather than receive assistance from Europeans.

I would particularly like to thank all our field staff whose battle with the heat, dust and flies is almost legendary, but whose personal commitments to a life that is often physically and personally isolated deserve the highest commendation and praise.

Appendix VII

Child Health Services

Director : Dr. R. W. Roberts M.B., B.S., F.R.A.C.G.P., D.C.H.

INTRODUCTION

1974 has seen further progress in both wings of the Child Health Services, particularly the School sector. Along with this has been the closer integration of work in the Clinic and School situation from administrative, educational and field work points of view.

Government initiatives, both State and Federal, have affected our Service. These new fields of work have necessitated close working co-operation with other Departments, particularly Education and Welfare. Funding arrangements have tended to be somewhat complex, particularly where Federal Government funded programmes are involved. This has meant administrative problems, and it is hoped that the future will see more rationalization.

Growth services have once more been restricted because of economic considerations. This has meant that the service has had to look again at all of its procedures and functions, culling out unnecessary or wasteful aspects. Such measures have led to greater efficiency and effectiveness.

It is recognized that for effective functioning, forward planning is necessary. It is hoped that 1975 will see the production of a three year forward plan involving all Sections of the Child Health Service, this to be updated annually. This will allow greater efficiency, particularly from the point of view of funding.

STAFF

Dr. Judith Henzell was appointed Senior Medical Officer, School Health, early in the year. She has rapidly fitted into her new position and the School Health section is benefitting from her energy and initiative.

Staff placements in the Child Health Centre field are governed primarily by the rate and distribution of births. 1974 has seen change as far as distribution of staff is concerned, particularly in the rapidly developing Northern corridor suburbs of Perth. This has meant additions to staff in spite of a falling birth rate.

Staffing of Child Health Centres in the metropolitan area of Perth presents no problem. Country centres are not so fortunate, as enquiries for appointments in this area are minimal and usually for part time positions. There are seven rural areas receiving part time services which in former years retained the services of a full time Child Health Nurse.

Table 1

Child Health Section

Staff	Full Time	Part Time	Total
Separations	16	4	20
Additions	23	5	28
Net gain (loss)	7	1	8
Nursing staff 31/12/1974	102	14	116

School Health Section Staff

Separations	2
Additions	12
Net gain	10
Total Nursing Staff	37
Total Medical Officers	9

We anticipate rapid growth in the Schools Section in 1975 in view of the extension of Services in Secondary Schools, Disadvantaged Schools and the Pre-primary sector.

VITAL STATISTICS

Table 2

Western Australian Statistics (1974)

	Perth Statistical Division	Rest of State	Whole State
Births			
Live births			
Number	13 313	6 894	20 207
Rate per 1 000 population	17·37	20·75	18·39
Ex-nuptial			
Number	1 238	1 114	2 352
% of live births	9·30	16·16	11·64
Stillbirths (born after 20 weeks gestation)			
Number	170	104	274
Rate per 1 000 total births	12·61	14·86	13·38
Deaths			
Infant deaths (aged under 1 year)			
Number	174	153	327
Rate per 1 000 live births	13·07	22·19	16·18
Neo-natal deaths (aged under 28 days)			
Number	134	84	218
Rate per 1 000 live births	10·07	12·18	10·78
Perinatal deaths (Stillbirths and neo-natal deaths)			
Number	304	188	492
Rate per 1 000 total births	22·55	26·86	24·02

Table 3

Infant Mortality in Western Australia—1970–1974

Year	Perth			Rest of State			Whole State		
	Live Births	Inf. Deaths	I.M. Rate	Live Births	Inf. Deaths	I.M. Rate	Live Births	Inf. Deaths	I.M. Rate
1970	13,908	251	18·0	7,710	208	27·0	21,618	459	21·2
1971	15,843	269	17·0	8,396	195	23·2	24,239	464	19·1
1972	14,400	188	13·1	7,777	160	20·6	22,177	348	15·7
1973	13 307	213	16·01	7 203	181	25·13	20 510	394	19·21
1974	13 313	174	13·07	6 894	153	22·19	20 207	327	16·18

Table 4

Neo-natal deaths as a percentage of Total Infant Deaths 1970–1974

Year	Perth Statistical Division	Rest of State	Whole State
1970	74·9	61·0	63·5
1971	69·0	61·5	65·6
1972	72·3	59·4	66·4
1973	73·23	59·66	67·00
1974	77·01	54·90	66·67

The vital statistics for 1974 show little change. The birth rate has decreased slightly and it is predicted that in the next few years this decline will continue. This reflects economic conditions and the increasing worldwide tendency towards limitation of family numbers.

The percentage of ex-nuptial births (Table 2) remains around 12% and still remains a matter of concern, particularly in view of the increasing tendency of single mothers to keep their babies rather than have them adopted out. The number of babies for adoption has declined markedly and we are having to deal with increasing problems associated with single parent families.

Perinatal mortality figures (Table 2) have declined markedly but have to be considered together with those of 1972 and 1973 to be meaningful. The high percentage of infant deaths in the rural area in the post natal period (see Table 4) is maintained and again is a matter of concern. The setting up of an expert committee to consider this problem is again strongly recommended.

CHILD HEALTH CENTRES

The trend established in 1973 with development of new Centres in the Northern corridor and the North West has continued. New clinics have been opened in Tom Price, Newman, Dardanup, Eaton, Padbury, Carine and Kallaroo. The majority of these have been built in association with Pre-school Centres (Kindergartens).

Table 5 shows the present status as far as Child Health Clinics are concerned in W.A.

Table 5

Child Health Centres

Centre buildings—Metropolitan	114
Country	80
Caravans	4
Mobile Centres	2

Throughout the year several enquiries have been received for the use of Child Health Centres by other family groups. Encouragement for small groups to use the centres when not occupied by the Child Health Nurse has met with good response. Many centres are now being more fully utilized by the community at large.

Table 6 is a summary of the work done in Centres during the past four years.

Table 6

Work in Child Health Clinics 1971–1974

	1971	1972	1973	1974
Birth notifications received	22 227	19 184	18 034	18 345
Births registered	24 239	22 177	20 780	20 481
Gross attendances	276 056	273 226	254 545	245 631
Individuals attending				
Under 1 year	26 406	24 785	24 746	23 529
1–2 years	9 651	11 088	11 512	10 964
Over 2 years	5 870	7 293	7 537	8 636
Total	41 927	43 166	43 795	43 129
Home visits	31 697	33 343	32 598	34 386
Telephone consultations	26 957	28 984	29 444	32 463
Hospital visits	17 569	18 909	18 013	16 651
Hearing tests	10 895	12 154	11 870	12 612
Failed to pass	76	109	84	106
Vision tests	1 015	1 621	1 455	3 809
Failed to pass	35	57	66	109
Urine tests	22 471	17 919	16 830	16 561
Number of Expectant Parent Classes	442	533	710	636

SCHOOLS SECTION

Following the policy of integration of different sections of the Child Health Services, the name " School Health Service " has been altered to the " Schools Section " of the Child Health Services, so that its integration with the work done in the centres, mainly with infants and very young children and the pre-school sector, could be more easily facilitated. The nurses will continue to be known as School Health Nurses in order to distinguish them from Child Health Nurses, but the Medical Officers wiil be known as Medical Officer, Child Health Services instead of School Medical Officer.

In order to improve the service available to country areas the appointment of School Health Nurses in five country centres was finalized. These centres are:

Albany Bunbury Esperance Geraldton Kalgoorlie

It is hoped by this means to improve the services available to these country centres by having a trained nurse who lived in the area and who is able to follow up cases more effectively.

As envisaged by the 1973 Annual Report a pilot scheme was conducted in 1974 in which the nursing staff carried out the routine physical screening component—leaving the more careful assessment in depth, including the parent interview, to the Medical Officer. As previously reported, this pilot scheme was very successful and is now being implemented throughout the entire section. As well as this innovatory scheme, other programmes expanded in 1974 were:

HIGH SCHOOL PROGRAMME

Following the attachment of a trained nurse at Belmont High School as a pilot scheme which proved to be very successful, this service has been extended to other high schools and Medical Centres have either been completed, or are in the process of being completed. During 1974 the following secondary schools were added to the programme:

Rossmoyne Senior High School
Balga Senior High School

A three week orientation course for the nurses commencing work in the high schools was instituted as it was felt that this was essential for the successful working of the scheme. If nurses are to come directly from hospital work, often involving Geriatrics, and are to be trained in Health Education, Health Screening, First Aid and Counselling, then this course is very necessary; the Education Department has approved this taking place during the nurses' paid time. One problem that seems to be likely to arise in the High School Programme is the fact that the nurse is frequently kept very busy dealing with First Aid and minor illness in children, and may not have enough time to implement her Health Education Programme. It is planned that the Health Education and Screening Service will be extended to the contributory schools in the area so that the nurse will also be taking her expertise to the surrounding primary schools.

DISADVANTAGED SCHOOLS PROGRAMME

Following the receipt of funds from the Australian Schools Commission, a Health Service has been commenced in the Disadvantaged Schools in the Metropolitan area. These schools are selected on a variety of socio-economic indices, and a large allocation of funds has been given to them to provide remedial educational and Health Services. Four trained nurses have been appointed to:

Highgate Primary School
South Fremantle High School
Hilton Park Primary School
Midvale Primary School

Each nurse will be visiting five Disadvantaged Schools in the neighbourhood of her Headquarters and all these nurses have been trained in the same course as the nurses commencing in the High Schools. A survey of health and in particular nutritional problems is planned, and it is hoped to bring about a change in School Canteen Policy in the Disadvantaged Schools.

COMBINED PREMISES FOR CHILD HEALTH STAFF AND GUIDANCE AND SPECIAL EDUCATION BRANCH

Application was made through the Education Department and the Public Health Department for the provision of joint premises for Medical Officers, nursing staff and Psychologists attached to the Guidance and Special Education Branch. It was felt that from combined premises a better approach to the multi-disciplinary assessment of children with learning, behaviour and other problems could best be mounted. Applications were made and approval granted by the Public Service Board for work to commence on these premises in the following areas:

Hollywood
Midland
Innaloo

These centres will commence operation in 1975.

PRE-PRIMARY CENTRE—HEALTH CENTRES, KNOWN AS CHILD HEALTH SERVICES CENTRES.

Funding has been approved from the Interim Committee of the Australian Children's Commission for the establishment of three multi-disciplinary Health Centres attached to three of the new Education Department Pre-primary Centres, with an intake of five year olds. These are situated at:

Koondoola
Queen's Park
Southwell (Hamilton Hill)

Work will be proceeding on these centres in 1975 and it is expected that they will become fully operational towards the end of 1975.

PRE-SCHOOL HEALTH TEAM

Funding has been approved by the Interim Committee of the Australian Children's Commission for the establishment of a Pre-school Health Team, primarily to work in Child Care Centres and Kindergartens in disadvantaged areas. This team will consist of:

1 Medical Officer
3 Nurses
1 Social Worker
1 Speech Therapist

It can be seen from the above new programme that it is predicted in 1975 that six of the eight School Health Regions will be regionalized and working, not from a central headquarters, but in the area which they serve, which will undoubtedly prove to be much more effective and efficient.

Tables 7 to 13 give a record of the work done by the Schools Section in 1974.

Figures based upon previous years estimates did not include the nurses examinations for vision and hearing. In the 1974 figures all examinations by Nurses have been included as well as all examinations by Medical Officers.

Table 7

Institutions visited in 1974

	Kindergartens	Child Care Centres	Primary	Secondary (including junior High Schools)
Metropolitan	147	44	301	42
Country	42	....	136	35
Total	189	44	437	77

Table 8

Children Examined by School Health Staff 1974

	Metropolitan			Country			Whole State		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Number of Children examined fully	22 282	17 697	39 979	1 906	2 573	4 479	24 188	20 270	44 458
Number of children examined for vision	34 414	31 896	66 310	11 641	11 663	23 304	46 055	43 559	89 614
Number of children examined for hearing	32 348	29 965	62 313	11 707	11 237	22 944	44 055	41 202	85 257
Total	89 044	79 558	168 602	25 254	25 473	50 727	114 298	105 031	219 329

Table 9

Reasons for Referrals for Medical Attention 1974

Type of Medical Attention	Metropolitan			Country			Whole State		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Vision	943	884	1 827	359	311	670	1 302	1 195	2 497
Hearing	356	340	696	160	181	341	516	521	1 037
Other	541	426	967	115	36	151	656	462	1 118
Total	1 840	1 650	3 490	634	528	1 162	2 474	2 178	4 652

Table 10

Referred for Home and Dental Attention

	Metropolitan			Country			Whole State		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Home Attention	770	302	1 072	240	69	309	1 010	371	1 381
Dental Attention	629	471	1 100	108	92	200	739	563	1 302
Total	1 399	773	2 172	348	161	509	1 749	934	2 683

Table 11

Children Examined by School Health Staff—Pre-School, 1974

	Metropolitan			Country			Whole State		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Number of Children examined	4 005	3 934	7 939	468	426	894	4 473	4 360	8 833
Number of Children examined for Vision	4 366	4 263	8 629	1 316	1 547	2 863	5 682	5 810	11 492
Number of Children examined for Hearing	4 288	4 192	8 480	1 550	1 318	2 868	5 838	5 510	11 348
Total	12 659	12 389	25 048	3 334	3 291	6 625	15 993	15 680	31 673

Table 12

Reason for Referrals for Medical Attention—Pre-School, 1974

Type of Medical Attention	Metropolitan			Country			Whole State		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Vision	27	23	50	13	9	22	40	22	62
Hearing	29	27	56	20	17	37	49	44	93
Other	102	64	166	7	5	12	109	69	178
Total	158	114	272	40	31	71	198	135	333

Table 13

Referred for Home and Dental Attention—Pre-School, 1974

	Metropolitan			Country			Whole State		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Home Attention	25	19	44	2	1	3	27	20	47
Dental Attention	31	36	67	3	2	5	34	38	72
Total	56	55	111	5	3	8	61	58	119

CHILD HEALTH CORRESPONDENCE SECTION

Many staff changes occurred during 1974 which showed some effect on the work of the Section.

Some country areas have continued to remain with Correspondence and these include parts of the Murchison and Eastern Goldfields. With a combined concentrated effort in these two areas in particular, there has been a marked increase in responses. In both these areas a good working relationship exists with Community Health and Community Welfare Services.

Staff was supplied from this Section to assist with the re-establishing of Darwin evacuees at Swanbourne Barracks and Graylands Migrant Hostel at the end of December.

Table 14

Child Health Correspondence Service

Birth Notifications	1 080
Letters received	2 375
Letters sent	8 888

Country visitors to Centre (West Perth)

Babies	205
1—2 years	51
2—6 years	68
Over 6 years	4
Expectant Mothers	8

Analysis of Contacts

Individual Babies	927
1—2 years	315
2—6 years	589
Expectant Mothers	131
Total	1 962

Screening Tests

Phenylketonuria	641
Vision	373
Hearing	577

SPECIAL NEEDS SECTION

This Section delivers Mothercraft and Fathercraft correspondence lessons to selected primary school populations, particularly in remote areas with high aboriginal populations.

During the year close working contact has been maintained with many teachers. For the first time students from Special Classes in Government High Schools have been enrolled.

Members of this Section joined with other correspondence staff in visiting three areas this year—Murchison, Kimberleys and Eastern Goldfields.

There has been a beginning in contact with students in Teachers' Colleges and once again the North West Camp School has been staffed by this Section.

SCHOOL RESOURCES SECTION

This Section, whose task is the construction and delivery of a Parentcraft Course to Second Year High Schools, has extended its sphere of work in 1974. The dedicated work of the staff in this Section has drawn appreciation from many quarters.

This has been made possible, in spite of limitations in funding, by the increasing involvement of interested and dedicated teachers. Plans are afoot for extension of activities into Teachers Training institutions.

EXPECTANT PARENTS SECTION

The overall aim of this Section is to answer immediate needs and to help expectant parents to some understanding and enjoyment of their future children; to encourage confidence in the parental role and a shared approach to family living.

This is achieved by classes at the Health Services Centre, West Perth, and in an increasing number of Regional Centres. It is hoped to extend this work by increasing the involvement of local Clinic Sisters in the programme.

1974 has seen some decrease in this work in the country areas (see Table 15). It is hoped that this trend will be reversed.

Table 15

EXPECTANT PARENT CLASSES

	1971	1972	1973	1974
Classes Held—				
Metropolitan	248	330	470	463
Country	155	160	240	173
Total	403	490	710	636
Attendance—				
Metropolitan	2 893	4 218	5 971	7 637
Country	219	370	651	727
Total	3 112	4 588	6 622	8 364
Number of Sisters Participating—				
Metropolitan	3	3	5	5
Country	8	9	14	9
Total	11	12	19	14

GENERAL REMARKS

The objective of a Child Health Programme should be to encourage a high quality, readily accessible, reasonably comprehensive, co-ordinated and efficient child health and related welfare service at local regional and State levels. Such Childhood Services should be developed in consultation with, and where appropriate, the involvement of the community to be served.

The objective involves the provision of:—

(i) Services that incorporate the most up to date knowledge and techniques available, provided by an appropriate range of medical, nursing and allied staff;

(ii) Services with emphasis on prevention;

(iii) Readily accessible primary services, available equally to all, and a comprehensive range of facilities, back up resources and supportive services co-ordinated according to function at local, regional and State levels.

(iv) Continuity and co-ordination of services.

(v) Efficient management to support the Professional Teams and to ensure courteous and prompt care for the public.

This broad objective, as laid down by the National Hospitals and Health Services Commission, is of particular relevance to the Child Health Services. In all future planning, this objective and the necessary provisions arising out of it must be borne in mind, and must influence our thinking.

At present, the following services are provided by the Child Health Service:—

1. *Screening for Handicaps*—physical, intellectual, emotional, behavioural. This is carried out in Child Health Clinics, Pre-school Centres and Schools.

2. *Assessment*—assessment of abnormalities detected during the screening process. This involves diagnostic and planned management work—up to date this has been performed outside the Service, by referral, by other agencies—General Practitioners, Paediatricians, Children's Hospitals, etc.

3. *Health Counselling*—This supportive role is carried out mainly by Child Health Nurses in local Child Health Clinics, involving mothers of infants and pre-school children. The Correspondence Section also provides such support to families in remote areas.

   Recent establishment of support services by Nurses based in Schools has allowed for a counselling role for children in secondary schools.

4. *Health Education*—Effective work in this field is difficult, but at present it is provided in a number of situations.

   (a) In personal contact—Child Health Clinics and Correspondence Service.

   (b) Expectant Parent Classes.

   (c) In Teachers' Colleges.

   (d) In Primary Schools.

   (e) In Secondary Schools.

The main emphasis in all work of the Child Health Services in this field is on Preparation for Parenthood—an area of real need in our Society.

Development of these services, both in quality and quantity should be the aim of the Child Health Services in the next few years.

Emphasis on the following will be necessary:

1. *Rural Areas*—Distance is especially a problem in Western Australia. Regionalization or decentralization of Services depends on integration with other Agencies delivering Childhood Services and on recruitment and training of staff as far as possible in the area in which they live and work.
2. *Assessment Services*—Almost non-existent at present, these depend for their development both on provision of suitably trained staff and on provision of adequate physical facilities. Initially, a central assessment facility is planned. This will act as a " pilot " venture, lay down standards and serve as a training ground for personnel in regional assessment centres of the future.
3. *Pre-School Services*—The development of the Child care movement means that provision of health facilities in this area must be established. All sections of the Service will be involved here—local Clinic Nurses in " Family Care " Units and pre-school examinations, School Health Nurses in kindergartens and the Pre-School Health Team in Day Care Centres.
4. *School Services*—Demand for Nurses attached to schools is strong, and provision of such personnel depends almost solely on provision of necessary finance in this field. There seems to be a great deal of interest from high quality staff—so provision of personnel is not a problem.
5. *Training of Staff*—Upgrading of service means establishment of suitable training programmes—for Doctors, Nurses and allied personnel. This must be a top priority in planning.

EVALUATION

Adequate evaluation systems need to be developed within this Service for two major reasons:—

1. The Child Health Programmes must retain their relevance to community development.
2. There needs to be a measurement of efficiency, effectiveness and value.

Methods of evaluation should be built into the Service so that correction can be made before thoughts become ingrained.

This presupposes an adequate and efficient record system which ensures meaningful data collection. At present there are grave deficiencies in this field and steps must be taken to overcome them. It is hoped that record systems are established in the near future which will include such matters as:—

1. Perinatal and infant mortality, morbidity and disability data, immunisation status, etc.
2. Patient and professional satisfaction as assessed by their perceptions of health encounters.
3. Patient compliance with advice.
4. Accessability of services in terms of location, transport, hours of availability and waiting time.
5. Whether or not services reach the population " at risk ".
6. Which categories of professional personnel are available to specific populations.
7. Whether the eligible population make appropriate use of the services.
8. Whether the services are comprehensive, co-ordinated and offer continuity.
9. Audit of professional and management performance.
10. Costs of services.

Evaluation along these lines is certainly not included in this Annual Report; it is hoped to come nearer to it each year.

If we are to progress, we must always look into the future, plan into the future. On the one hand, let us retain all that is good, useful and profitable in the past; on the other, let us " alter and exchange our ideas as fast as science moves ahead ".

FUTURE PLANNING

Future activity depends on two things:—

1. The content and quality of the programmes planned. These depend on the broad principles outlined above, with due regard to costing.
2. The size of the exercise. This depends a great deal on birth rate and immigration trends in W.A.

Both of these have shown steady increase up to the peak year of 1971, since then there has been a steady decline. Whether this decline will continue is a matter of conjecture, but obviously if we are to plan ahead we must have some estimate. The Education Department of W.A. which is concerned in this aspect, has a Forward Planning Division and the figures below are taken from their calculations.

LIVE BIRTHS (W.A.)

Actual	Predicted
1956—16 916	1974—20 000
1961—17 078	1975—20 500
1966—17 007	1976—21 000
1971—24 239	1977—21 500
1972—22 177	1978—22 000
1973—20 510	1979—22 500

Live Births registered during the eleven year period between 1956 and 1966 fluctuated between a low of 16 186 (in 1965) and a high of 17 290 (in 1963). After 1966 live births increased significantly to the record absolute level of 24 239 registrations in 1971. Since that time the live births registered has steadily declined.

NET MIGRATION GAIN/LOSS

The net migration gain for each age cohort between the year of birth (registration) and entry to school increased throughout the 1960 decade and peaked at 1971 intake. Since that time, the falling off in the net migration increase (both interstate and international) is reflected in a lower percentage gain.

Notes:

1. It is anticipated that the birth rate will gradually increase during the next five years, although it is quite conceivable that the number of live births could continue to fall.
2. It is also predicted that there will be an upturn in net migration gain, although with the current downturn in the economic climate this prediction could radically alter.

Appendix VIII

Pharmaceutical Services Branch

W. M. Griffiths, B. Pharm., F.P.S. (G.B.), M.P.S.
Principal Pharmacist

Poisons Act and Regulations

A new printing of Appendix " A " to the Poisons Act was published in April, 1974: this printing incorporated the most recent recommendations of the Western Australian Poisons Advisory Committee and the National Health and Medical Research Council for classifications of poisons and hazardous substances.

Imperial measurements in the Poisons Act Regulations were converted to metric statements by an amendment published in the *Government Gazette* of 3rd May, 1974. Other amendments to the regulations require the warning statement on containers of Benzene, Carbon Tetrachloride and Tetrachloroethane—" If you can smell the vapour it is harmful on prolonged exposure ", and a protective warning on certain hair dyes—" This product should not be used for dyeing the eye lashes or eye brows; to do so may be injurious to the eye. "

Two proclamations were made by the Governor during 1974 on the advice of the Poisons Advisory Committee. One provided for a statement on packs of analgesics to prevent misuse by prolonged dosage. The second proclamation prohibited the sale, supply, or use of oxyphenisatin, a laxative causing undesirable side effects.

Pesticides

Metric conversion of imperial statements in the Pesticides Regulations was gazetted on 3rd May, 1974.

On hundred and fourteen (114) submissions were received under the national clearance scheme for clearance of pesticides in association with the Technical Committee on Agricultural Chemicals. Twenty seven (27) of these were new chemicals. Eighty seven (87) were proposals to use existing chemicals in present or modified formulations for new uses.

The Western Australian Pesticides Advisory Committee approved one hundred and thirty nine (139) formulations of pesticides for registration during 1974; twenty seven (27) were still under consideration at 31st December, 1974.

Two hundred and eighty five (285) registered formulations were cancelled or withdrawn.

Eleven hundred and ninety two (1192) formulations were registered as at 31st December, 1974.

Appendix IX

Dental Health Service

J. L. Prichard, Dip.D.S., B.D.Sc., F.I.C.D. – Principal Dental Officer

This report covers the activities of the Dental Health Service for the year ended 31st December 1974:—

1. CLINIC SERVICES

(a) Rural and Remote

(i) *Kimberley Region*

Regular Clinics are maintained at:—

Wyndham, Derby, Broome.

with visiting services to:—

Kununurra, Halls Creek, Fitzroy Crossing, Koolan Island, Kuri Bay, and Missions at Kalumburu, Balgo Hills, Lombadina, Beagle Bay, La Grange, and the Derby Leprosarium.

There is an annual visit to Nicholson, Gordon Downs and Sturt Creek Stations.

(ii) *Pilbara Region*

Regular Clinics are maintained at:—

Pt. Hedland, Dampier, Karratha, Wickham, Exmouth, Paraburdoo, Tom Price and Newman.

with visiting services to:—

Goldsworthy, Shay Gap, Onslow, Pannawonica, Wittenoom and Shark Bay.

(iii) *Southern Region*

Regular Clinics are maintained at:—

Three Springs, Beverley, Margaret River and Ongerup.

with visiting services to:—

Morawa, Quairading, Brookton, Jerramungup, Gnowanerup, Northcliffe and Condingup.

In addition to the above services, mobile road clinics provide dental requirements in the Northern Agricultural, North Eastern Goldfields (Laverton), East Pilbara (Marble Bar), Murchison and Gascoyne areas (Meekatharra). One mobile clinic provides a regular dental service to Institutions in and around the metropolitan area.

Clinics, both fixed and mobile, are generally manned by one dentist and support nursing staff. Two exceptions are Port Hedland and Newman where, in both cases, two dentists operate.

In addition, a Dental Therapist operates in each of the towns of Newman and Brookton.

Table I shows the volume of treatment provided during the year.

(b) School Dental Therapy

Seventeen schools were serviced as at 31st December 1974. Stationary clinics were established in ten schools and children from seven surrounding schools attended the main clinics for treatmnet.

Schools in which clinics were established:—

Balga
Brentwood
Brookton
Kewdale
Marmion
Newborough
Newman
Nollamara
Palmyra
Yokine

Feed in schools

Centre	Other schools
Palmyra	Richmond Primary Bicton Primary Our Lady of Fatima Willagee Primary
Brookton	West Dale Primary
Marmion	North Beach Primary Sorrento Primary

Table II shows the summary of dental services provided at School Dental Therapy Centres during the period.

2. SCHOOL OF DENTAL THERAPY

On 25th February 1974, the first intake of Dental Therapy trainees commenced the two year course in Dental Therapy in temporary accommodation at 15 & 16 Rheola Street, West Perth.

During the year, further temporary accommodation at 1118 Hay Street, and at 72 and 74 Kings Park Road, was utilised to enable the training programme to be satisfactorily carried out. The use of temporary premises was necessitated by delays in completion of the School building in Mt. Henry Road, Como.

The intake comprised 60 girls, 40 of whom were from the Metropolitan area, and 20 from country areas. Of the girls that started the course, nine failed to complete the first year either due to resignation or unsatisfactory performance.

(a) **Course outline for First Year**

1.	Preventative Dentistry	34 hours
2.	Clinical Dentistry	550 hours
3.	Dental Anatomy	100 hours
4.	Dental Materials and Equipment	25 hours
5.	Dental Radiography	12 hours
6.	Structure and Function	30 hours
7.	Bacteriology	50 hours
8.	Histology	50 hours
9.	Anatomy	50 hours
10.	Human Relations	35 hours
11.	Art	50 hours

Apart from the above, a number of Dental Health Education sessions in primary schools were arranged. The trainees also spent a brief period in school dental therapy clinics during third term to allow them to see the application of their practical training in a clinical situation.

(b) **Staff**

Appointments made during the year resulted in the following staff establishment as at 31st December 1974:—

Dental Officers	5
Dental Therapists	5
Dental Nurses	1
Dental Technician	1
Registrar	1
Typist	1

In September Dental Officer P. Dillon was granted 12 months study leave to undertake a National Health and Medical Research Council Travelling Scholarship. His programme includes study and observation of overseas dental health schemes and the obtaining of a Public Health Dental qualification at the London University.

Acknowledgments

The branch was fortunate to obtain the services of a number of persons to help in the specialist areas of the first year section of the course:

Principal Psychologist, Mental Health Services, conducted the Human Relations course—Mr. R. Smith.

Head of Division, Microbiology, State Health Laboratories Service, assisted in arranging and conducting the Bacteriology Practical classes—Dr. E. MacKay-Scollay, Mr. R. Fergie.

University of W.A., Department of Anatomy, assisted in Anatomy practical classes —Dr. J. McGeachie.

(c) **Recruitment**

In order to attract suitable trainees, career talks by the staff were arranged with secondary school guidance officers.

“ Open days ” were held to allow prospective trainees the opportunity of gaining first hand knowledge of dental therapy as a career.

3. BUILDING PROGRAMME

During 1974 the number of Dental Therapy Centres was increased from 3 to 9 with additional units being established utilizing existing school rooms at the Marmion, Newborough, Yokine, Nollamara, Brentwood and Newman Primary Schools.

The Dental Therapy Training School in Mt. Henry Road, Como was nearing completion at the end of 1974 as were the three Dental Therapy Centres at Camboon, Anzac Terrace and Willetton, which were due to commence operations with the 1975 school year.

Planning was well advanced for the second year teaching clinic for 30 trainees at Warwick, and the Administrative Block, Lecture Theatre, Trainees Amenities Area and Store on the Mt. Henry site.

Planning was also under way for 25 new Dental Therapy Centres in metropolitan primary schools to accommodate the 51 School Dental Therapists who, it is anticipated, will graduate at the end of 1975.

4. SUBSIDISED DENTAL CARE

Assistance towards the cost of dental care is provided for children, pensioners and other adults. Weekly income and dependants are the principal factors in establishing eligibility.

A summary of treatment provided and subsidies paid under this scheme is shown in Table III.

5. INSPECTIONS

During the year dental inspection of children in schools and kindergartens continued.

741 schools and pre-school centres were visited. 52 572 children were screened and of these 22 308 were referred for immediate dental attention.

6. DENTAL HEALTH SERVICE STAFF DISTRIBUTIONS AS AT 31st DECEMBER 1974

1. Administration

Dental Officers	3	
Clerical & General	9	
Wages	2	
	—	14

2. Field Service

2.1 *North Metropolitan Region*

Dental Officers	1	
Dental Therapists	10	
Dental Nurses/Assistants	5	
	—	16

2.2 *South Metropolitan Region*

Dental Officers	1	
Dental Therapists	8	
Dental Nurses/Assistants	3	
	—	12

2.3 *Country Region* (*South West*)

Dental Officers	6	
Dental Therapists	1	
Dental Nurses/Assistants	9	
	—	16

2.4 *Rural and Remote Region* (*North West*)

Dental Officers	13	
Dental Therapists	1	
Dental Nurses/Assistants	24	
	—	38

3. Dental Therapy Training Schools

Dental Officers	5	
Dental Therapists	5	
Dental Nurses	1	
Dental Technicians	1	
Trainee Therapists	51	
Clerical & General	2	
	—	65
Total staff		161

Table I

Annual Summary of Treatment—Rural and Remote Centres Year Ending 31/12/74

			NUMBER OF TEETH RESTORED										COMPLETED DENTURES						
				Amalgam															
	Completed courses of treatment	Teeth Extracted	Synthetic	Single Surface	Compound	Inlay	Crown Bridge	Completed R.C.T.	Dressing	X-ray	Prophylaxis	Minor Surgery	F.U.	F.L.	P.U.	P.L.	U/L R.A.	Rebase	Repairs
Adults	7 491	8 178	5 031	5 428	7 131	136	213	321	2 347	3 623	2 841	499	436	243	253	133	....	120	507
Children	6 087	3 895	1 216	6 305	5 108	44	36	113	1 461	1 919	3 200	144	1	Nil	10	5	199	....	....
Total	13 578	12 073	6 247	11 733	12 239	180	249	434	3 808	5 542	6 041	643	437	243	263	138	199	120	507

Table II

Summary of dental treatment carried out at Dental Therapy Centres during 1974

School Centre	Children enrolled	Children made dentally fit and placed on six monthly recall programme	Number of Teeth	
			Filled	Extracted
Brentwood Primary	417	416	764	144
Palmyra	900	875	1 737	241
Marmion	522	503	593	51
Kewdale	539	531	1 694	186
Newborough	444	278	586	123
Yokine	351	345	1 138	84
Nollamara	546	546	1 666	147
Balga	717	685	1 753	123
Brookton Junior High	241	241	575	39
Newman Primary	223	187	587	33
Total	4 900	4 607	11 093	1 171

Table III

DENTAL SUBSIDY SCHEME

Treatment Provided and Claims Paid for 12 *Months Ending December* 31*st*, 1974

	Number of People	Total Fees	Subsidy	% of Total Fees	Number of Visits	Number of Fillings	Number of Teeth Extracted	New Pros.	Other Pros.
Children	1 093	31 972·05	27 881·31	87	2 998	2 838	1 006	10	21
Pensioners	1 283	94 596·27	83 168·02	88	3 605	1 050	1 408	950	419
Others	27	821·00	789·35	96	38	15	....	5	8
Totals	2 403	127 389·32	111 838·68	88	6 641	3 903	2 414	965	448

Appendix X

Nursing Administration Section

Miss M. E. Beard, D.N.A., F.C.N.A. – Principal Matron

1. NURSING SERVICE

The demand for Registered Nurses and Nursing Aides this year has not been quite so insistent in metropolitan hospitals, and to a lesser degree, in country hospitals.

Perhaps the general economic situation and improved pay for nurses, were significant factors in attracting larger numbers of married nurses back to the hospitals. However, shortages in some country areas (e.g. north-west, eastern goldfields, wheat-belt) appear to be inevitable for one or more of the following reasons:—

climate

isolation

diminished quality of life and social opportunities (real or imagined) as compared to the urban scene.

Country hospitals mostly staffed by married nurses resident in the town, naturally have fewer problems than those dependant upon itinerant single nurses.

This year as in other years November, December and January have been the most difficult months to maintain the nursing service at an effective level. Fortunately the Emergency Nursing Service has enabled us to keep the situation intact during this time.

Generally there has been no diminution in the standards of nursing care provided, for which credit must be given to the nursing staff of the hospitals.

1.1 "Matron" and "Director of Nursing Service"

In keeping with current trends, the traditional title of " Matron " has been replaced in the regional and peripheral hospitals by: " Director of Nursing Service ". " Matron " has been retained as being more appropriate for the smaller hospitals.

1.2 Retirements

On the occasion of their retirements this year, it is pleasing to record appreciation of two Matrons who have given unstintingly of themselves and their skills to Nursing and to the Medical Department.

Miss Nina Simpson, Matron, Regional Hospital Kalgoorlie—1953–1974.

Miss E. McGrath, Matron, Swan District Hospital Middle Swan—1963–1974, as well as other administrative appointments in several country hospitals.

1.3 Emergency Nursing Service

Recruitment has allowed sufficient numbers for this Service to provide a significant aid to staffing in the hospitals.

appointments: 1/1/74–31/12/74

6 months contract....	15
12 months contract	28
Total	43
Number employed at 31/12/74	38

1.4 Community Health Service

The Nursing component of this Service at 31st December 1974 consisted of—

103 Registered Nurses
37 Registered Nursing Aides
38 Nursing Assistants

functioning in the following area of this State:

Kimberley
Pilbara
North-West
Eastern Goldfields
South-West
Metropolitan

as well, Community Health Service nurses are involved in flying duties with the Royal Flying Doctor Service, escort service for patients, and education for inservice training.

8 Sisters are currently on study leave: 6 to pursue the Community Health Nursing Diploma Course at the Western Australian Institute of Technology; 1 Child Health; 1 Masters Degree in Advanced Family & Community Nursing (University of Washington's School of Nursing, U.S.A.)

1.5 Child Health and School Health Sisters

156 Sisters are currently employed in these services, and there are at present 2 studying the Community Health Nursing Diploma Course. The scope of School Health will gradually be extended to include High Schools; and at 31/12/74, 3 appointments had been made.

2. NURSE EDUCATION

2.1 Post-Graduate Studies—College of Nursing, Australia, Melbourne

Nursing Administration Diploma Course

Miss C. J. McDonald

Mrs. M. Schneider

Mr. J. Hakkaart

All three were successful.

College of Nursing, Australia, W.A. Branch, incorporated in W.A.I.T.

Community Health Diploma Course

Miss J. Bedford
Miss M. Heys
Miss E. Panter
Miss M. Spackman
Miss H. Brandreth
Miss J. Hicks
Miss E. B. Carruthers
Miss B. B. Sutton

Helen Bailey Scholarship

Awarded this year to Mrs. I. Munninger, Principal Nurse Educator, Graylands Hospital, (Mental Health Services). Mrs. Munninger's programme was comprehensive and took her through the United Kingdom, several Scandinavian countries, and the United States of America.

2.2 Government School of Nursing

Hospital Based Diploma Programme

During the period 1st January 1974 to the 31st December 1974 recruitment into the Hospital Based Diploma Programme was as follows:

Kalgoorlie Regional Hospital	12
Geraldton Regional Hospital	13
Northam Regional Hospital	15
Bunbury Regional Hospital	16
Transfers from other training schools	1
Transfers to other Training Schools....	1
Recommenced training	3

The secondment of student nurses to Royal Perth Hospital for experience in specialities continues, and is satisfactory.

A total of 131 students from Royal Perth Hospital obtained Maternity and Child Health experience at the Regional Hospitals to December 1974.

Experience in Mental Health field has proceeded satisfactorily.

Most students are aware of the value of secondment in the various fields.

Staff

Miss E. E. Harler, A.R.R.C., E.D., F.C.N.A., Organiser of Nurse Training. Retired on the 11th April 1974 after twenty two (22) years of service.

Miss Harler has been a dedicated member of the Nursing Profession, giving a lifetime of service. As Organiser of Nurse Training she was responsible for the development of general nurse and nursing aides education in department hospitals. Unswerving loyalty and integrity in her relations with colleagues and all members of the profession have been her outstanding traits.

The Nursing Profession is indebted to her for her tireless encouragement and assistance in furthering nurse education. The Registered Nurses, Nursing Bursars, Enrolled Nursing Aides who have successfully participated in nursing programmes have benefited from her wise counselling and experience. Her efforts have always been directed towards establishing the highest possible standard of theoretical knowledge and expertise in patient care.

Miss M. P. Underwood, F.C.N.A. Principal Nurse Educator Nursing Education Diploma.

Appointed to the dual position of Principal & Administrator on the 11th April, 1974.

Miss Gardiner, Nursing Education Diploma, resigned after three years service, to take up a position as Nursing Officer with the Royal Australian Nursing Federation on the 27th May, 1974.

VISITS to country hospitals by Government School of Nursing Staff—31.

Extended Care Inservice Course

Two extended care inservice courses were held.

The first course was held at Mt. Henry Hospital from the 27th March 1974 to the 8th May 1974. Twenty (20) Registered Nurses participated in the course.

The second course was held at Sunset Hospital from the 5th June 1974 to the 24th July 1974. Twenty two (22) registered nurses participated in the course.

Participants expressed the view that such inservice courses helped to widen the outlook of Nursing Personnel towards the care of people in these institutions and in the community.

Coronary Care Course

The Coronary Care Course was held from the 15th July 1974 to the 15th August 1974.

The course was co-ordinated by Mrs. Pat Grundy and Professor R. Taylor. Twenty (20) Registered Nurses participated in the National Heart Foundation Course. Experience and observation was provided by:—

Sir Charles Gairdner Hospital
Repatriation General Hospital
Royal Perth Hospital

This was the fourth course in Coronary Care conducted at the Government School of Nursing and was again highly successful.

Annual Inservice Course for Nurse Educators and Clinical Instructors

The course was held from the 19th August 1974 to the 23rd August 1974. Twenty two (22) Nurse Educators and Clinical Instructors attended this week.

The week was geared to the changes taking place in Nursing Education. The opportunity was provided for participants in this week to discuss views and problems with the Clinical Instructors from Royal Perth Hospital in a half day seminar. As usual, the view was expressed that the week was not long enough, but all had been stimulated to take a fresh look at individual problems and situations.

Matron's Meeting

Matrons from the Peripheral and Country Hospitals met on the 20th September 1974. Mr. R. James, Principal Designate of the Western Australian School of Nursing, discussed proposals for the amalgamation of the Government School of Nursing and Royal Perth Hospital, with the Matrons.

Discussion then took place on several aspects of the Nursing Aide Programme and nursing problems and certain conclusions were agreed to.

Amalgamation of the Government School of Nursing and Royal Perth Hospital School of Nursing

Throughout the year meetings have continued to discuss various aspects of the proposed amalgamation of the two Schools of Nursing, and some conclusions have been arrived at. It is envisaged that the first intake for the Western Australian Shool of Nursing will occur on the 9th June 1975 whether the new building is ready for occupancy or not.

Trans Pacific Conference

The Trans Pacific Conference was held from the 21st October-25th October 1974 and was attended by Miss M. Underwood, Principal, Government School of Nursing.

Nursing Aide Course

In January 1974 the recruitment and appointments for the Nursing Aide Course were taken over by the Medical Department. All records were transferred from the Government School of Nursing to the Medical Department.

Interviews

During the period 1st January 1974 to the 31st December 1974, 195 persons were interviewed by appointment. This number does not include the Nursing Bursars leaving school, nor applicants for the Nursing Bursary.

There were also a number of casual interviews of school girls and parents who called at the Government School of Nursing for information.

A total of 245 applicants for the Nursing Bursary were interviewed in the year 1st January 1974-31st December 1974.

3. RECRUITMENT

3.1 Bursaries: to 4th and 5th year secondary school students:

1 year	17
2 years 1973-1974	100
2 years 1974-1975	113

3.2 Nursing Publicity and Recruitment

The aims have been to promote nursing and to disseminate accurate information about nurse education programmes, particularly in the schools.

Accordingly an extensive schedule has been pursued, including—

(i) School visits—123, over a wide area between Port Hedland and Albany.
(ii) Seminars associated with the regional hospitals.
(iii) Vacation schools for prospective nurses.
(iv) Career nights and organised hospital tours.
(v) Publicity through the various media.

Results can perhaps be gauged from the many enquiries which have been received, and the consistent improvement in recruitment in the Schools of Nursing in this State.

3.3 Nursing Employment Section

Transfer to Curtin House has provided attractive conditions for interviewing and advising prospective staff. The large volume of enquiries relating to appointments in hospitals throughout the State, has been handled with the customary expertise of the officer concerned.

4. INSPECTION—HOSPITALS

Departmental	38
Board	44
Private—General	16
Private—General and Maternity	5
Private—Nursing Homes	249
	352

5. PRIVATE HOSPITALS

5.1 Numbers at 31/12/74:

General	9
General and Maternity	6
Maternity	109
	124

5.2 Additional Beds 1974

New Hospitals	beds
Kaleeya (General)	34
John Wesley Lodge (N. Home)	76
Aboriginal Centre (N. Home)	23
	133
Extensions	beds
Bethesda (General Hospital)	2
Ross Memorial Nursing Home	29
Salvation Army Village Nursing Home	2
Midland Nursing Home	2
Martindale Nursing Home	1
Hardy Lodge Nursing Home	2
Oats Street (General) Hospital	6
	44
Total	177

5.3 Private Hospitals Closed 1974

	beds
Yeovil Nursing Home	15
Grosvenor Nursing Home	27
(Claudia Hicks Lodge N. Home) (Rowethorpe Flats—Sick Bay)	29
Hillcrest Maternity Hospital	15
Lesmurdie (General) Hospital	17
	103

5.4 Private Hospitals Transferred to Departmental or Board Management

	beds
The Mount (General) Hospital	93
Kwinana Maternity Hospital	12
Kalamunda Spa Hospital	61
	166

I wish to express my appreciation to all nursing staff connected with the Public Health and Medical Department for their service to the people of this State, and my grateful appreciation to the staff of the nursing section of the Medical Department.

Appendix XI

Division of Occupational Health

Dr. F. Heyworth, M.B., M.R.C.P., A/Director

PNEUMOCONIOSIS AND THE MINING INDUSTRY

Mining Examinations

8 673 men who entered the mining industry during 1974 were examined under the Mines Regulation Act and 5 164 miners under the Mine Workers' Relief Act. There were 363 miners suffering from silicosis and of these 31 were new cases.

The total number of men diagnosed as suffering from silicosis fluctuates and depends to some extent, upon the itinerary of the Mines Mobile X-Ray Unit.

There was only one newly diagnosed case of asbesto-silicosis from the Wittenoom Mine and one new case of mesothelioma.

There were no newly diagnosed sufferers from tuberculosis.

An epidemiological survey of Collie coal miners was carried out in February 1974. 91% of the miners participated. The survey consisted of a Medical Research Council questionnaire of respiratory symptoms, chest x-rays, respiratory function tests and audiograms. A number of chest x-rays suggested the presence of coal miners' pneumoconiosis. These x-rays were referred to the Medical Officers of the New South Wales Coal Board who confirmed the presence of minor pneumoconiosis in 13 miners. Although this has not yet been reported before in the coal fields and is significant, it is not necessarily evidence that the men are suffering from any disease. It does indicate the need for routine periodical dust sampling with a view to identifying dusty areas and improving dust suppression and ventilation.

A similar epidemiological survey of Kalgoorlie gold miners was commenced in July 1974. Because of the numbers this was restricted to men who had spent more than 10 years in the mines. It is hoped that this survey will be completed in 1975 to include the whole workforce.

Pneumoconiosis Medical Board

Over 73% of the new claims were found not to be disabled by pneumoconiosis.

Other dusty trades

Medical examinations and chest x-rays surveys of other workers employed in dusty trades have been continued. 434 had chest x-ray examinations.

Sandblasting operations were checked in conjunction with Department of Labour officers to ensure that men are not exposed to excessive respirable silica dust. Because of the nature of the work protective equipment tends to become neglected and continual supervision appears to be necessary to maintain tolerable standards.

Personal air samplers were used in a number of situations where siliceous or asbestos dust was present in suspect amounts. Recommendations for reducing excessive dust levels were made in conjunction with factory inspectors. A survey of asbestos dust exposure in asbestos fence erectors has been commenced.

Lead Workers

Tests and supervision of men engaged in work involving exposure to lead were carried out in co-operation with the Departments of Labour and Mines. A total of 233 urine tests were carried out by the Government Chemical Laboratories to determine lead exposure. In addition a number of blood tests were carried out by the State Health Laboratories.

Five lead workers were suspended temporarily from lead exposure as a result of the tests. The operations involving the salvage of scrap lead from batteries is still the main cause for concern.

Mercury

A survey of 21 dentists and 8 others exposed to mercury and its compounds showed no excessive urinary excretion. Air tests to measure mercury vapour in dental surgeries were made in conjunction with urine tests and found satisfactory.

Flourine

Routine sampling of urine of men engaged in water fluoridation as well as occasional visits to check on safety precautions at the main reservoirs were carried out. The 14 urine samples were within normal limits.

Isocyanates

Workers with isocyanates have annual respiratory function tests or alternatively the tests are done at their places of work. No new cases of isocyanate sensitivity have been encountered.

Pesticides

During the year 87 companies were registered or re-registered for commercial pest control work and 230 men licensed as operators. Inspections were made of vehicles and equipment and some spraying was supervised. There is a tendency for the industry to use a wider range of pesticides and this is particularly evident in the field of weed control. The need to upgrade pest control activity is still apparent particularly in the judicious application of chemicals, the maintenance of equipment and the labelling of pesticide stored in the vehicles. A course on pest control conducted by the Education Department was well received and it is anticipated that an improved course will be held in 1975.

Complaints from the public were received and these usually involved unnecessary contamination and sprays carrying to neighbouring properties.

Blood tests were organised for operators exposed to suspect amounts of pesticide and those showing evidence of chemical absorption advised on appropriate protective measures.

Four firms were re-registered to carry out commercial fumigation work on 21 operators licensed or re-licensed. Ships fumigated in W.A. ports totalled 29. During the year the Commonwealth Quarantine Department reduced the number of cyanide fumigations in favour of methyl bromide and one vessel only was treated with cyanide.

In the timber and food industries 23 non-commercial operators were licensed to carry out their own fumigation work.

In April 1974 a visit was made to Kununurra to measure spray drift during aerial spraying. There were technical problems, the solution of which has improved prospects for more accurate scientific assessment in the future should aerial spraying continue to a great enough extent.

Noise Abatement Act

This section covers both Community Noise as it affects residents and Industrial Noise as it affects employees in industry.

1. Community Noise

Regulations

The Noise Abatement (Annoyance of Residents) Regulations 1974 were gazetted on 21st June 1974. These Regulations have allowed a much greater control over noise annoyance of residents than was previously possible. Many community noise complaints throughout W.A. have been received and assessed under these Regulations, and many have been resolved.

Considerable assistance has been given to local authorities in assessing and solving noise annoyance problems.

A community noise study has been initiated and this will provide valuable data for future noise regulations.

Educational

A number of talks/lectures have been given to local authorities and other bodies regarding community noise, its measurement and abatement. This service has been extended to various parts of the State. The second Noise Inspectors Course was held at the W.A.I.T. this year and the Health Department took an active part in its organisation.

Noise Sub-Committees

Two sub-committees have been established to investigate noise from industrial and domestic appliances, noise from vessels on waterways and pile driving operations. These sub-committees have progressed considerably in their investigations

2. Industrial Noise

Regulations

Industrial Noise Regulations are being prepared.

Hearing Conservation

The Hearing Conservation service which this Department has been providing to private industry and Government Departments for many years is being continued.

Programmes have been followed up in Kalgoorlie and Collie mines. Ear protection is being more readily accepted by persons working in high noise level areas and operators of earth-moving equipment on the mines are in the main wearing ear muffs. A total of 2 555 audiograms were carried out by this Department for workers exposed to possible noise damage to their hearing.

This year all Forestry workers were examined. Chain saw operators and those working in timber mills in the Department have been encouraged to wear ear muffs.

A mobile audiometry unit is being established and this will enable facilities to be taken to more distant areas under ideal conditions.

Medical Centres

This year the Medical Centre at the Metropolitan Sewerage and Drainage Board, Shenton Park, was built and opened in July. This department was consulted as to requirements and general set up. A trained nurse is employed full time.

The Metropolitan Transport Trust and Forestry Department have also consulted this Department with a view to setting up their own Medical Centres and employing trained nurses.

Training of Students—Pilot Study Programme

This was undertaken at the request of the Nurses Registration Board.

Three groups from three major hospitals attended at the Department for two days weekly. Visits to factories were made and lectures on Occupational Health activities were given to students. Forty-five students took part in the pilot study.

In addition lectures were given to Health Surveyors, Commonwealth Health Inspectors, student nurses from Royal Perth Hospital and Penrhos Ladies College. The first Convention for Occupational Health Nurses held in Adelaide was attended by Miss Wilkinson.

Dermatitis

Thirteen cases were reported by private individuals and these were investigated. Cases were all varied. Suspected materials such as dyes from sandals brought from Asia, oil, cement, shampoo and dust were believed to have caused skin irritation. One firm reported an outbreak of tinea but this condition cleared quickly when hygiene was improved in the ablution block.

Kinetics

Hospitals

Lecture/Demonstration services were continued for nursing and other staff at—

Albany Regional Hospital
Bunbury Regional Hospital
Claremont Hospital
Kalgoorlie Regional Hospital
Mt. Henry Hospital
Manjimup Hospital
Port Hedland Hospital
Royal Perth Hospital
Government School of Nursing

Non-routine advice was given to—

Narrogin Hospital
Mental Health Services
Home of Peace

Royal Perth Hospital requested advice on instituting a programme to reduce handling problems in the following areas.

(a) Nursing
(b) Orderlies
(c) Housekeeping
(d) Engineering
(e) Catering

Surveys were undertaken and appropriate recommendations made. Some tangible results have been obtained in the nursing, where photographs of desirable techniques have been taken and are to be part of ' In-Service ' training schedules.

Accidents to Hospital Staff

Abstraction and analysis of accident statistics continued until the end of the year. In December this duty was transferred to Mr. A. Allen, Fire and Safety Co-ordinator.

Industry

Metropolitan Water Board—A series of two day lecture/training sessions were held for Foremen, Supervisors and Leading Hands.

Lectures or other advice were given to

Alcoa, Pinjarra
Forward Downs
Pattern & Rigg
Mt. Newman Mining, Port Hedland
Main Roads Department, Port Hedland.

General—Lectures were given to

Students at Leederville Technical College
Arbitration Inspectors
Health Inspectors

A survey on the effects of sleeping on water beds was undertaken.

Staff changes

Dr. J. C. McNulty who had followed Dr. Letham in charge of the Branch was appointed Deputy Commissioner of Public Health in October 1974.

In March 1974 Mr. Roy Caruth was appointed Noise Technician resulting in a great impetus in the community noise field; most valuable progress has been achieved.

Education and other activities

In addition to previously stated activities the Division Chaired or was represented on the following:

N.H. & M.R.C. Occupational Health Committee
Air Pollution Control Council and Scientific Advisory Committee.
Radiological Advisory Council and Medical Advisory Committee
Pneumoconiosis Medical Board
Noise Abatement Advisory Committee
Poisons Advisory Committee
Electrical Safety in Hospitals Committee
Mines Ventilation Board
Australian Council on Smoking and Health
State Government Industrial Safety Committee
Coogee Air Pollution Study Group
Industrial Foundation for Accident Prevention
St. Johns Ambulance

Lectures, demonstrations, seminars, etc. were given to many groups including medical students, Health, Factory and Scaffolding Inspectors.

I would like to thank members of the staff and others outside the Department, especially from other Departments, for their help and co-operation throughout the year.

CLEAN AIR SECTION

The activities of the Section are included under the following headings:—

A.—MONITORING OF AIR POLLUTANTS.

B.—SPECIFIC INVESTIGATIONS AND TESTING.

C.—ADVISING ON AIR POLLUTION CONTROL COMPLAINTS.

D.—EDUCATION.

E.—STATUTORY DUTIES.

A—MONITORING OF AIR POLLUTANTS

1. Dust Monitoring

The Central Electricity Research Laboratory directional dust gauge is mainly used for dust monitoring. It has the advantage that the source of the dust can be located directionally, that is to say in a northerly, southerly, easterly or westerly direction. Furthermore, samples of the collected dust can be analysed for specific components which again can be related to the direction of the source. Dust concentrations are expressed in units which represent the obscuration of light by the dust, which are related to the directions of the complaint-provoking factor.

The measurement of deposited dust in the metropolitan area is being continued, to assist with comparisons of fall-out in other capital cities. The standard N.S.W. glass funnel and jar is used, with the results expressed in milligrams per square metre per day.

Perth Area

During 1974 the number of dust gauges sited in the metropolitan area was maintained at 23.

The dust gauges installed by an alumina refinery and a steel works in the Kwinana-Naval Base area are still operated by the companies and processed by this section.

The locations of the Public Health Department CERL gauges as at December 1974 were:—

City Beach
East Perth
Lathlain Park
Welshpool (3)
Kewdale (3)
Perth Airport
Naval Base
Maddington (2)
Gosnells
Rivervale (5)
Jandakot (4)

For results see Appendix A.

The results from deposit gauges sited at City Beach, East Perth, Lathlain Park and Welshpool are shown in Appendix B.

Port Hedland

During 1974 a marked decrease in dust levels in Port Hedland townsite was recorded. This is believed to be the result of continued improvements in dust suppression measures adopted by the iron ore companies.

The Health Surveyor, Shire of Port Hedland, has continued to collect the dust samples from the eleven gauges and forward them to the Section's laboratory in Perth for processing.

At December, 1974 the locations of the dust gauges had not been changed from the previous year. The dust samples from each site have been analysed for iron and manganese expressed as Fe_2O_3 and MnO_2 every second month

For results see Appendix C.

Cape Lambert/Dampier

The six dust gauges at Cape Lambert and Dampier were maintained during 1974.

The Health Surveyor, Shire of Roebourne has collected the samples and maintained the gauges in this area. The samples have been forwarded to the section's Perth laboratory for processing, and the samples from Dampier analysed for iron ore.

Gauge No.	Location
1.	Port area, Point Sampson
2.	Immediately south of the port area, Cape Lambert
3.	North of Wickham Townsite
4.	South of Wickham Townsite
5.	Parker Point, Dampier
6.	Bowling Club, Dampier

For results see Appendix D.

Esperance

The dust survey in the Esperance Port Authority area was continued in 1974.

The samples are collected by the Esperance Port Authority and forwarded to this Section's laboratory in Perth for processing. The dust samples are analysed for nickel content and the results are expressed as percent pentlandite.

For results see Appendix E.

Kalgoorlie

The dust survey in and around Kalgoorlie and Boulder was continued during 1974.

The samples are collected and the gauges maintained by the Health Surveyors for both local authorities and the samples forwarded to the Section's Perth laboratories for processing.

Location of Dust Gauges at Kalgoorlie

1. Great Boulder Mine
2. South Kalgoorlie School
3. East Kalgoorlie School
4. Eastern Goldfields High School
5. Boulder Central School
6. South Boulder School
7. Boulder Caravan Park
8. West Kalgoorlie Freight Yards
9. Kalgoorlie School
10. North Kalgoorlie School
11. Killarney Street Lamington
12. Elizabeth Street Kalgoorlie

For results see Appendix F.

Chemical analyses of the dust samples have been carried out by the Government Chemical Laboratories.

2. Sulphur Dioxide and Particulate Monitoring

Perth Area

Monitoring for sulphur dioxide and particulates has continued in the metropolitan area. In June a new site was established at North Fremantle.

The Section wishes to thank the residents of many areas who have volunteered to assist the Section in having and operating these sampling stations in their own homes.

For results see Appendices G and H.

Surveillances in the residential areas show that generally in Perth the measured levels of sulphur dioxide are extremely low.

Australind

In June monitoring for sulphur dioxide and smoke particulates was initiated in Australind at sites near to the titanium dioxide manufacturing plant.

For results see Appendices I and J.

Kalgoorlie

Monitoring for sulphur dioxide has continued from a site near the centre of the town during 1974.

For results see Appendix K.

3. Oxides of Nitrogen Monitoring

Three sampling sites, operating on a 24 hour time base located at Claremont, Crawley and Perth have been operated throughout the year. These sites are indicated on Fig. 1.

For results see Appendix L.

4. Ozone Monitoring

During the year ozone monitoring was commenced on a continuous basis at 57 Murray Street.

For results see Appendix M.

5. Hydrogen Sulphide Monitoring

Hydrogen sulphide was measured at a single site on the boundary of a nickel smelter at Kwinana. Although the odour of the sulphide is still occasionally noticeable, the measured concentrations are generally very low, as shown in Appendix N.

Motor Vehicles

City surveys and monitoring for pollutants continued under the following categories:—

1. Pedestrian exposure tests, measured on the footpath at locations throughout the city (See Fig. 2 and Appendix O).
2. 24 hour exposure tests, measured in the city at 57 Murray Street, Perth.

During the year it became obvious that deterioration of the carbon monoxide instrument had caused increased interference from water vapour in the air. The carbon monoxide results must be treated with caution for the latter part of the year. A new instrument was brought into use at the end of 1974 and the results verify that the old instrument was reading high.

Results are shown in Appendices P and Q.

Lead was determined at 57 Murray Street, Perth on a regular basis. Many of the technical difficulties associated with the determination of very small quantities of lead have been eliminated and the results of continuous determinations arc believed to be representative of city levels.

For results see Appendix R.

B.—SPECIFIC INVESTIGATIONS AND TESTING

1. Fluorine

Superphosphate Works

The six superphosphate manufacturing plants were visited during the year for the measurement of their fluoride emissions. At one of the works, automatic mixing has replaced the outdated batch mixer. As a consequence fluoride emission has decreased to 12 per cent of the previous value.

The scrubbing systems at all works are adequate for effective fluoride emission control. During the year there have not been any complaints of damage to vegetation attributed to these works.

For results see Appendix S.

Brickworks

One of the local brickworks, that last year caused concern because of fluoride emissions, has installed dry scrubbers on their kilns. The first scrubber installed on a kiln in January started with an efficiency of 90 per cent and after ten months' use was still 50 per cent efficient. Scrubbers on 4 and 5 kilns were commissioned early October and are 70 per cent efficient.

This brickworks is being regularly visited by Inspectors, and members of Fluoride Sub-Committee have also inspected the works.

In the vicinity of these works a network of static monitoring sites using lime impregnated paper has been established for trend analysis of ambrient fluoride. The results indicated that wind direction did not greatly influence the amount of fluoride at each site. In general when two or more sites are in line, the closer one to the source had highest reading. The locations of the static sites are shown in Fig. 3.

Past experience has shown that on almost calm nights with certain atmospheric conditions, associated with a katabatic drift following the river valley, damage to vegetation could occur within an area about 1 000 metres North-West of the factory. However, since the installation of the dry scrubbers vegetation damage has been slight.

For results see Appendix T.

Since June of 1974, a continuous monitoring station has been operating in a vineyard North-West of the brickworks in the Midland area.

On several occasions fluoride was detected, the highest reading being 100 parts per billion others 40-90 parts per billion of 1-2 hours duration. The limit of detection of the instrument is 20 parts per billion and although there were apparent incidences of fluoride detection at this level, accompanied by slight vegetation damage, they were not reported due to the lack of accuracy of the monitor at this low level detection.

To overcome this shortcoming, the purchase of a more sensitive instrument having limits of detection less than 1 part per billion and having ranges of 0-15 parts per billion 0-90 parts per billion, has been authorised.

2. Kalgoorlie—Nickel Smelter

Officers undertook mobile monitoring of sulphur dioxide in the vicinity of the smelter. These measurements were taken in conjunction with meteorological observations to assist in modelling sources of sulphur dioxide.

3. Kununurra—Crop Spraying

During crop spraying with pesticides, officers of Occupational Health and Clean Air Section undertook measurements of spray drift, involving droplet sizing and fall-out estimation over a wide area.

4. Miscellaneous

Many brief investigations for Government Departments, Local Authorities and private companies were carried out during the year. Such investigations includes the testing of compressed air cylinders used for SCUBA diving for carbon monoxide and hydrocarbons. Officers of the Section were called on to assist the Coroner in an accident involving carbon monoxide poisoning of the occupants of a flat.

C.—ADVISING ON AIR POLLUTION CONTROL COMPLAINTS

The number of written and telephoned complaints was similar to that received in the previous year. Notwithstanding the continued efforts of industries to control their emissions, some can still be a genuine source of complaint for nearby residents. Many of these complaints arise from the unfortunate siting of certain industries relative to nearby residential areas.

Advice

Many enquiries were received by the Section from members of the public and students for information and material for projects.

D.—EDUCATION

Lectures were given during the year at Mt. Lawley Technical School, the Western Australian Insitiute of Technology, and to various professional organisations.

E.—STATUTORY DUTIES

All meetings of the Scientific Advisory Committee, of which the Director of Occupational Health and Clean Air is Chairman, were attended. Numerous reports have been prepared for the Committee by the Senior Engineer and his staff.

Inspections of premises by these officers have been carried out as required by the Scientific Advisory Committee.

The Senior Engineer is the State representative on the Air Pollution Sub-Committee of the National Health and Medical Research Council, and represents the Department of Environmental Protection on the Monitoring Sub-Committee of the Australian Environmental Council.

STAFF

Early in the year Mr. D. Sykes joined the staff as a Scientific Officer filling the vacancy resulting from Dr. Macey's retirement and staff promotions. In April, Mr. G. Smith was appointed as a Laboratory Assistant. The monitoring and assistance to the Council and various Committees have continued to increase the Section's commitments. The staff have continued to work many hours outside of their normal hours to maintain activities which operate 24 hours a day, 365 days of the year.

FIGURE 1

SULPHUR DIOXIDE AND SMOKE MONITORING SITES

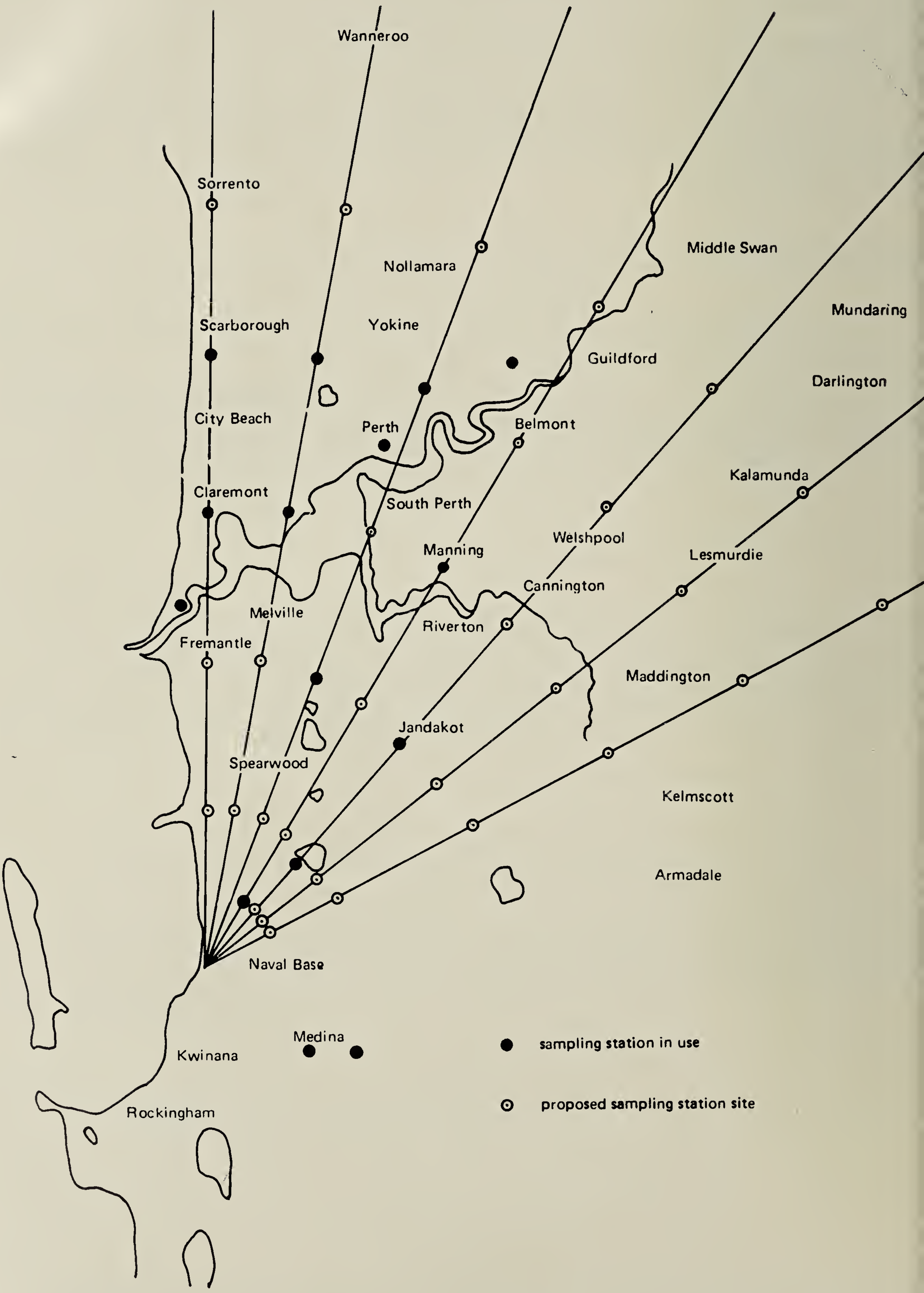
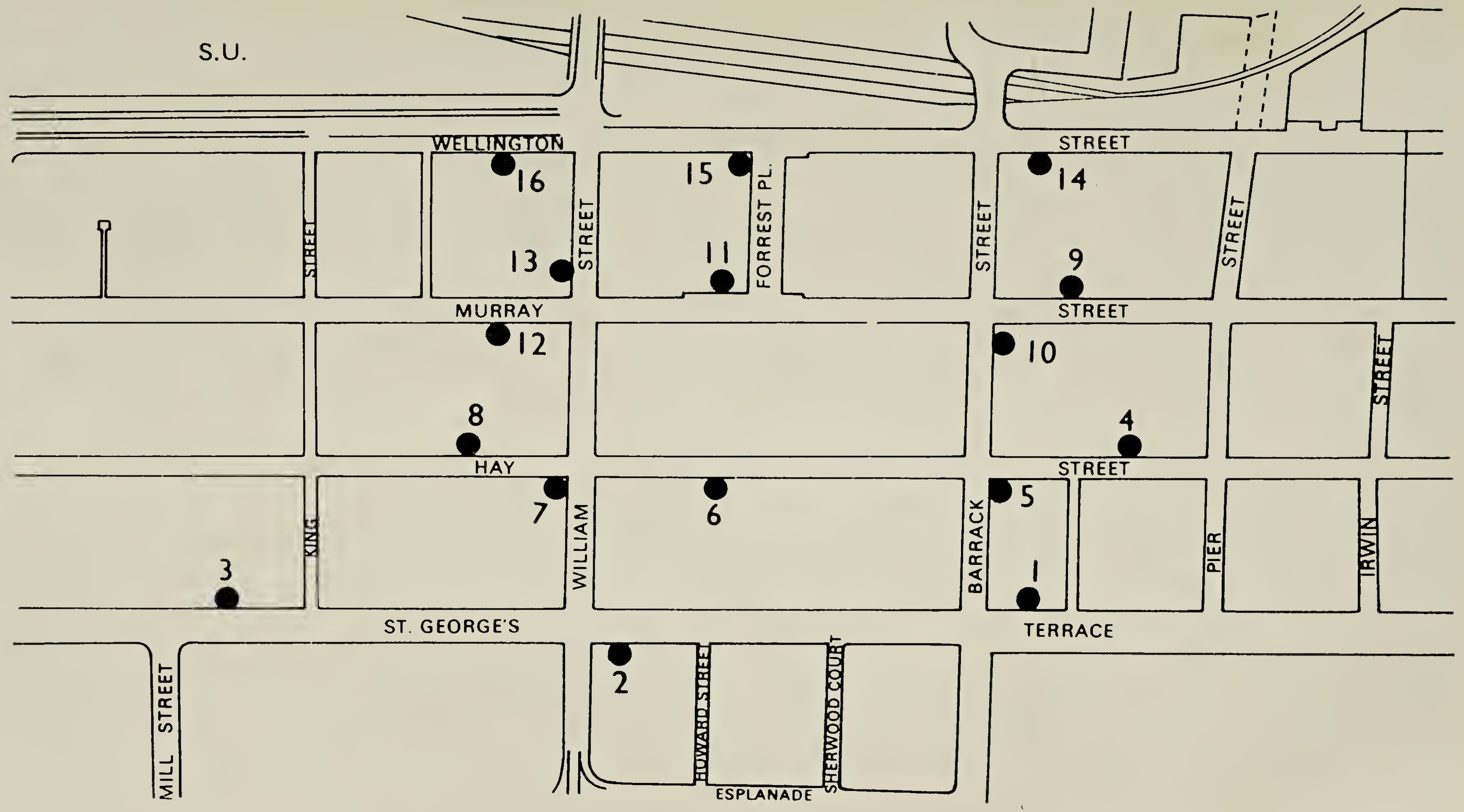


FIGURE 2

PEDESTRIAN EXPOSURE TESTING SITES



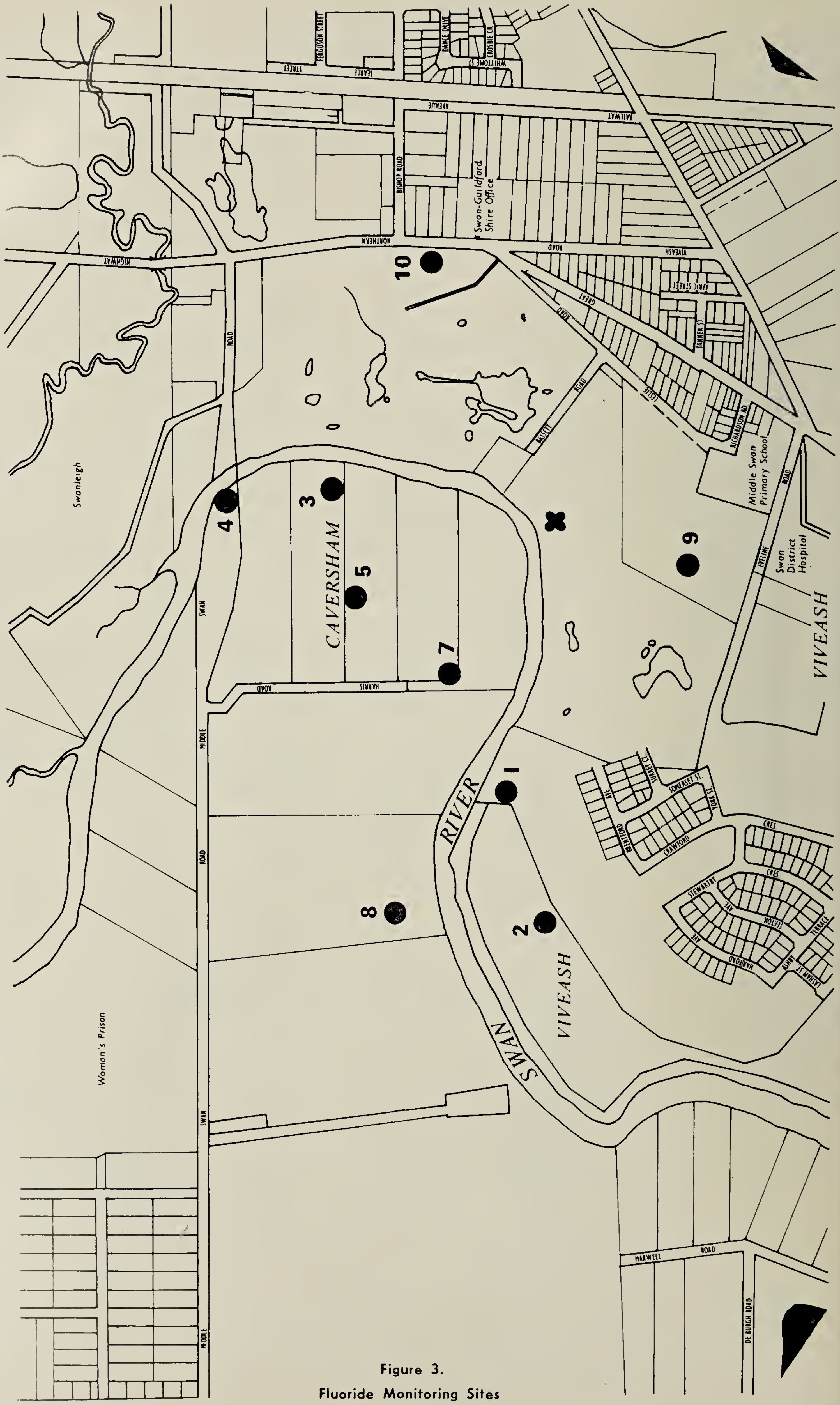


Figure 3.
Fluoride Monitoring Sites

Appendix A

Dust Testing Programme—Perth Metropolitan Area 1974

Mean total dirtiness for the twelve months period January–December, 1974.

Gauge	Total Dirtiness
City Beach	1·3
East Perth	1·2
Lathlain Park	2·6
Welshpool 1	2·5
Welshpool 2	3·1
Welshpool 3	2·2
Kewdale 1	3·2
Kewdale 2	2·7
Kewdale 3	3·7
Perth Airport	1·4
Naval Base....	3·9
Maddington 1	7·4
Maddington 2	1·7
*Gosnells	2·8
Rivervale	2·0
Rivervale 1	2·4
Rivervale 2	3·6
Rivervale 3	2·2
†Rivervale 4	3·3
Jandakot 1	1·8
Jandakot 2	4·9
Jandakot 3	3·3
Jandakot 4	1·6

* 4 Months Only.
† 5 Months Only.

Appendix B

DEPOSIT GAUGES 1974.

Deposition (milligrams per square metre per day)

Sampling Point	Total Insolubles	Total Inorganic
City Beach	17	10
East Perth	20	10
Lathlain Park	22	11
Welshpool	78	56

Appendix C

DUST TESTING PROGRAMME—PORT HEDLAND 1974

Gauges	Jan.		Feb.		March		April		May		June		July		Aug.		Sept.—Oct.		Nov.		Dec.	
	T.D.	%	T.D.	%	T.D.	%	T.D.	%	T.D.	%	T.D.	%	T.D.	%	T.D.	%	T.D.	%	T.D.	%	T.D.	%
1	10·2	....	10·1	56	16·4	....	32·5	69	18·8	....	23·9	66	21·7	....	11·5	56	10·9	59	17·7	....	26·9	54
2	9·1	....	7·4	61	9·3	....	8·8	56	6·1	....	9·1	64	10·6	....	4·9	62	8·8	55	8·6	....	15·3	62
3	10·2	....	7·8	39	6·8	....	4·7	13	1·2	....	3·3	16	1·6	....	2·6	21	2·8	17	6·2	....	17·4	54
4	7·3	....	3·6	25	7·0	....	2·0	10	2·6	....	1·2	9	0·9	....	3·1	44	1·7	35	2·7	....	4·5	29
5	3·8	....	3·1	28	6·8	....	2·6	14	3·8	....	2·0	5	1·2	....	....	....	....	....	....	....	....	....
6	18·5	....	16·3	68	31·1	....	30·0	73	17·9	....	32·0	72	37·8	....	12·6	76	8·9	67	19·7	....	14·5	71
7	7·5	....	3·9	35	8·0	....	2·7	34	1·5	....	3·8	54	4·9	....	2·9	44	2·3	38	5·4	....	3·7	43
8	22·5	....	7·5	22	4·6	....	17·1	50	10·3	....	37·9	70	12·0	....	6·1	66	3·2	55	7·8	....	3·5	20
9	5·4	....	9·4	5	8·2	....	4·0	6	3·1	....	2·0	21	1·9	....	1·6	10	2·6	13	6·2	....	3·3	35
10	10·8	....	14·2	40	35·7	....	91·9	76	37·0	....	44·4	75	10·4	....	17·4	74	14·7	65	9·8	....	53·3	70
11	12·7	....	3·7	18	7·4	....	0·7	6	1·7	....	2·0	28	1·0	....	0·6	12	1·7	20	3·3	....	2·0	22

% = per cent iron ore in total dust from gauge.
T.D. = total dirtiness.

Appendix D

DUST TESTING PROGRAMME—CAPE LAMBERT/DAMPIER 1974

Gauge	Jan.		Feb.		Mar.		Apr.		May		June		July		Aug.		Sept.		Oct.		Nov.		Dec.	
	T.D.	%	T.D.	%	T.D.	%	T.D.	%	T.D.	%	T.D.	%	T.D.	%	T.D.	%	T.D.	%	T.D.	%	T.D.	%	T.D.	%
1	8·1	....	5·1	....	5·3	....	2·2	....	1·7	....	2·0	....	2·2	....	2·5	....	1·7	....	4·5	....	3·5	....	5·2	....
2	13·8	....	9·6	....	6·2	....	6·1	....	4·1	....	2·1	....	5·6	....	4·6	....	4·1	....	4·8	....	5·4	....	5·1	....
3	16·6	....	9·3	....	....	....	....	....	....	....	1·3	....	0·8	....	0·7	....	1·3	....	1·0	....	1·7	....	1·9	....
4	8·2	....	3·8	....	2·9	....	1·0	....	0·4	....	0·5	....	2·1	....	....	....	....	....	....	....	3·7	....	5·0	....
5	9·4	54	9·3	54	8·8	....	8·3	30	3·8	34	1·8	20	2·6	37	3·9	57	6·0	58	10·9	64	8·9	65	18·6	71
6	7·3	38	9·9	38	4·5	....	6·0	26	2·0	26	1·0	15	1·7	19	2·7	26	3·9	21	6·6	32	4·5	26	11·1	31

Gauges 1, 2, 3, 4 Cape Lambert
5, 6 Dampier
T.D. = Total Dirtiness.
% = Per Cent Iron Ore in Total Dust from Gauge.

Appendix E

ESPERANCE PORT AUTHORITY DUST SURVEY 1974

Gauge	Jan.		Feb.		Mar.		Apr.		May	
	T.D.	%NiS	T.D.	%NiS	T.D.	%NiS	T.D.	%NiS	T.D.	%NiS
1 W		2·59		1·73		2·55		2·77		0·50
S	5·3	1·73	2·3	2·37	3·9	1·59	0·6	2·68	3·5	1·05
E		1·73		4·91		2·91		5·68		2·55
N		4·37		1·18		1·59		4·14		0·23
2 W		0·50		0·31		0·32		0·50		0·36
S	2·9	1·05	1·9	0·91	3·5	1·00	0·7	0·50	1·4	0·23
E		0·96		1·41		1·31		1·18		2·09
N		0·91		1·82		0·50		0·54		0·64
3 W		0·18		0·18		0·14		0·18		0·05
S	2·9	0·23	1·7	0·14	1·5	0·14	0·7	0·18	0·8	*
E		0·32		0·27		0·23		0·22		*
N		0·18		1·36		0·14		0·32		*

1974—*continued*

Gauge	June		July		Aug.		Sept.		Oct.		Nov.	
	T.D.	%NiS	T.D.	%NiS	T.D.	%NiS	T.D.	%NiS	T.D.	%NiS	T.D.	%NiS
1 W		1·00		0·23		0·18		0·59		....		....
S	0·7	2·04	2·5	0·23	0·6	0·18	1·4	2·18	....	....	....	....
E		4·28		1·46		1·18		4·69		....		....
N		2·37		0·27		0·09		1·55		....		....
2 W		0·32		0·09		0·41		0·36		0·41		0·23
S	0·9	*	2·6	0·32	0·9	0·27	1·4	0·82	1·3	0·14	6·3	0·50
E		1·82		1·27		1·82		1·50		0·86		3·78
N		0·36		*		0·09		0·36		0·23		0·14
3 W		*		*		0·14		0·14		0·23		0·14
S	0·4	*	0·8	*	1·2	0·36	1·2	0·18	1·8	0·23	2·1	0·14
E		*		*		0·36		0·09		0·09		0·09
N		*		*		0·41		0·09		0·09		0·41

T.D. = Total Dirtiness
%NiS = % 2 Fe S NiS (Pentlandite)
* = Less than 0·05%

Appendix F

DUST TESTING PROGRAMME—KALGOORLIE 1974

Monthly Total Dirtiness

Gauge	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	18·2	17·6	9·5	6·0	7·5	7·0	4·0	3·7	3·5	8·9	28·0	....
2	6·2	5·2	4·1	0·6	1·7	1·7	2·3	1·5	0·9	7·1	11·7	....
3	24·1	19·2	12·4	3·8	7·3	5·7	5·8	6·2	15·5	22·2	33·5	....
4	7·8	7·5	5·5	1·8	2·6	2·2	2·9	7·1	....	....	....	....
5	6·8	4·6	3·5	1·1	2·0	1·8	2·1	1·2	0·8	4·1	....	....
6	12·5	6·4	5·3	0·8	1·3	1·4	1·5	1·0	0·8	3·5	11·8	....
7	2·3	3·4	1·1	0·6	1·6	1·1	2·3	0·9	0·9	2·7	11·3	....
8	1·3	3·0	1·0	0·3	0·8	0·7	0·6	0·4	0·2	1·7	5·0	....
9	2·7	....	1·4	0·5	2·2	1·3	1·3	2·2	1·8	3·9	6·9	....
10	2·3	3·8	1·5	0·2	1·1	1·2	1·9	1·0	0·8	5·5	7·8	....
11	2·2	3·1	1·5	0·2	1·7	1·2	1·2	0·4	0·5	3·4	5·0	....
12	3·7	4·4	6·1	0·4	11·6	2·3	1·8	1·3	....	27·2	10·4	....

Appendix G

METROPOLITAN SULPHUR DIOXIDE CONCENTRATIONS 1974

(All results expressed in micrograms per cubic metre)

Averages

Site	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Seven Highest 24 hr. Values for Year							Annual Average
Perth	20	20	18	16	8	21	10	20	15	9	13	11	93	84	83	77	70	66	62	15
Banganup	....	....	....	....	....	1	1	0	0	1	2	2	7	7	7	6	6	6	6	1
Bayswater	1	0	2	4	4	4	2	4	4	3	8	5	42	33	32	28	27	26	25	3
Bentley	4	....	3	1	2	4	2	2	2	1	2	3	36	27	19	17	14	13	12	2
Claremont	5	5	2	1	1	3	2	1	1	2	2	2	30	25	21	16	16	15	114	2
Inglewood	8	4	3	1	2	1	1	0	1	1	5	2	31	24	23	23	19	17	15	2
Jandakot	0	0	1	2	2	2	1	1	0	1	1	1	46	29	14	10	8	7	7	1
Kardinya	10	9	13	4	2	1	1	1	1	1	2	3	54	37	34	32	30	28	26	4
Medina	1	0	1	1	6	3	22	5	5	9	2	5	150	114	106	82	57	55	42	5
Nedlands....	....	....	....	1	2	2	1	0	1	1	3	5	26	22	21	20	16	13	12	2
North Fremantle	....	....	....	....	....	2	3	4	7	6	12	11	94	46	36	34	32	29	26	6
South Coogee 2	139	66	8	10	3	0	4	6	8	16	37	92	283	272	262	251	223	217	195	32
South Coogee 6	4	4	1	1	4	1	0	....	0	0	2	1	19	16	16	15	15	15	14	2
South Coogee 7	26	15	12	1	3	....	1	2	1	4	12	13	126	112	63	54	53	44	43	8
Wattleup	31	....	....	....	3	2	3	4	5	45	23	54	171	158	150	107	95	87	75	17
Wembley Downs	2	1	1	1	3	1	1	2	1	1	1	3	19	10	10	9	9	9	8	2

Appendix H

METROPOLITAN SMOKE READINGS 1974

(All results expressed in micrograms per cubic metre)

Averages

Site	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Yearly Average
Perth	3	5	5	5	11	10	9	11	5	5	4	4	6
Banganup	....	....	....	....	....	3	2	1	1	1	2	3	2
Bayswater	1	2	2	3	6	9	6	5	2	4	3	3	4
Bentley	0	....	3	4	8	6	3	3	2	1	1	2	3
Claremont	1	0	1	2	5	5	2	2	3	1	1	1	2
Inglewood	1	3	3	5	8	8	4	6	3	2	3	3	4
Jandakot	2	2	3	1	2	1	0	2	1	1	2	2	2
Kardinya	2	4	1	1	3	3	2	1	2	2	4	3	2
Medina	2	1	0	0	1	1	1	1	3	2	2	5	1
Nedlands	....	....	....	3	4	7	4	4	3	3	2	4	4
North Fremantle	....	....	....	....	....	3	4	4	2	3	4	5	4
South Coogee 2	2	3	1	0	0	1	0	1	0	1	1	2	1
South Coogee 6	0	0	0	0	0	1	1	0	0	1	1	1	0
South Coogee 7	1	0	1	1	1	....	3	0	0	0	1	1	1
Wattleup	....	....	....	....	1	1	0	3	0	2	2	4	2
Wembley Downs	1	1	4	6	9	4	2	8	4	4	2	2	4

Appendix I

AUSTRALIND SULPHUR DIOXIDE CONCENTRATIONS 1974

(All results in expressed micrograms per cubic metre)

Site	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Seven Highest 24 Hour Values for Year							Annual Average
No. 1	2	2	4	4	9	0	7	119	36	33	29	24	21	17	4
No. 2	8	17	2	1	17	12	1	128	120	104	89	75	62	50	9

Appendix J

AUSTRALIND SMOKE READINGS 1974

(All results expressed in Micrograms per cubic metre)

Site	June	July	August	September	October	November	December	Annual Average
No. 1	0	1	0	0	0	0	2	0
No. 2	0	0	0	1	1	0	0	0

Appendix K

KALGOORLIE SULPHUR DIOXIDE CONCENTRATIONS 1974

(All results expressed in micrograms per cubic metre)

	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
Monthly Average	0	2	1	....	1	0	0	....	1	3	2	7
Maximum Hourly Average	14	143	143	....	86	14	57	....	114	380	483	644
Minimum Hourly Average	0	0	0	....	0	0	0	....	0	0	0	0
Maximum Daily Average	1	14	9	....	6	3	3	....	14	34	69	54
Minimum Daily Average	0	0	0	....	0	0	0	....	0	0	0	0

Appendix L

METROPOLITAN OXIDES OF NITROGEN CONCENTRATIONS 1974

Average

(All results expressed in micrograms per cubic metre)

Site	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Highest 24 Hour Average	Lowest 24 Hour Average	Average
Perth .... 57 Murray Street	14	11	13	16	48	53	51	60	57	47	13	15	151	0	33
Claremont .... Cnr. Queenslea Drive & Stirling Highway	19	20	27	35	45	64	42	42	39	32	25	14	223	1	34
Nedlands .... Thomas Street	....	....	....	18	14	21	12	16	22	12	7	10	82	0	15

Appendix M

OZONE MEASURED AT 57 MURRAY STREET

(All results are in micrograms per cubic metre of air)

1974

	April	May	June	July	August	September	October	November	December
Monthly Average	30	32	32	48	40	46	54	....	....
Highest 24 Hour Average	58	76	78	92	104	70	72	68	63
Highest 1 Hour Average	130	120	120	150	130	150	200	210	130

Appendix N

HYDROGEN SULPHIDE KWINANA 1974

(All results in micrograms per cubic metre)

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
Monthly Average	1	0	0	0	0	0	0	5	2	1	1	3
Maximum Daily Average	6	5	3	0	0	0	0	26	18	18	6	45
Maximum 3 Hourly Average	30	30	30	0	0	0	0	150	150	150	150	150
Minimum Daily and 3 Hourly Average	0	0	0	0	0	0	0	0	0	0	0	0

Appendix O

PEDESTRIAN EXPOSURE TESTS 1974

Date	Site No.	Carbon Monoxide ppm			Total Hydrocarbons ppm			Nitrogen Oxide (μgm⁻³)	Lead (μgm⁻³)	Benz-a-Pyrene (μg10⁻³m⁻³)	Particulate (μgm⁻³)
		10 hour Average	Max. 8 hrly Average	Max. Hrly Average	10 hour Average	Max. Hrly Average	Min. Hrly Average	10 hour Average	10 hour Average	10 hour Average	10 hour Average
25/1/1974	1	15·5	15·8	19·5	2·8	3·9	1·4	145	4·4	0·3	193
1/2/1974	8	10·2	10·9	12·5	2·0	2·3	1·7	47	4·4	0·3	172
15/2/1974	9	7·9	7·9	11·7	....	....	....	24	1·8	0·2	168
22/2/1974	15	14·2	15·7	25·0	1·4	2·7	0·2	85	5·3	0·3	139
1/3/1974	16	12·7	12·8	19·2	2·2	2·6	1·9	129	7·3	0·3	228
15/3/1974	3	8·0	8·2	10·5	2·1	2·8	1·6	137	3·6	<0·2	157
29/3/1974	14	13·4	14·8	24·0	2·0	3·2	0·7	75	5·5	0·3	146
5/4/1974	18	8·7	9·7	12·0	1·5	2·2	0·8	48	3·0	<0·2	83
26/4/1974	11	4·1	4·2	4·5	1·5	1·9	1·3	25	1·6	0·2	105
3/5/1974	7	8·2	8·4	12·7	2·3	3·0	2·0	47	3·4	0·2	122
10/5/1974	4	13·9	15·7	25·0	3·0	4·0	2·0	54	6·0	0·1	98
17/5/1974	13	29·0	29·0	41·0	3·9	6·2	2·4	262	16·1	0·1	325
24/5/1974	5	17·3	18·2	22·5	2·4	2·8	1·9	98	13·5	<0·05	194
13/6/1974	9	12·6	12·5	19·0	3·8	6·1	3·3	176	14·1	0·1	379
14/6/1974	9	5·5	6·2	11·7	3·2	5·0	1·9	252	11·8	0·1	341
21/6/1974	8	6·3	6·6	4·0	2·7	3·0	2·3	61	5·1	0·1	133
5/7/1974	1	14·7	14·4	2·7	2·6	4·3	1·2	55	13·9	<0·05	269
12/7/1974	14	8·2	8·2	13·0	2·3	4·8	1·7	65	2·8	0·2	71
9/8/1974	15	32·9	34·2	42·0	4·2	4·8	3·1	282	14·0	0·4	244
2/9/1974	15	15·6	18·8	26·0	2·6	3·6	1·5	180	7·9	0·1 0·2	167
3/9/1974	15	17·2	17·5	22·5	2·5	3·5	1·8	132	6·2	0·1	134
4/9/1974	15	13·6	13·2	17·5	2·2	2·7	1·9	139	4·4	0·2	117
5/9/1974	15	10·5	12·4	18·0	2·1	3·2	1·7	138	4·7	0·2	116
6/9/1974	15	17·0	17·0	22·0	2·3	3·0	1·8	170	5·8	0·2	146
11/10/1974	13	17·4	16·6	25·5	1·8	3·1	1·4	222	....	0·8	228
9/12/1974	7	12·3	12·3	15·0	1·3	1·8	1·0	78	....	0·1	69
10/12/1974	7	....	....	....	1·6	1·8	1·3	104	....	0·2	118
11/12/1974	7	....	....	....	1·7	2·1	1·5	84	....	0·2	114
12/12/1974	7	....	....	....	1·6	2·0	1·3	62	....	0·2	142
13/12/1974	7	....	....	....	1·6	1·8	1·3	66	....	0·1	55
14/12/1974	7	....	....	....	1·2	1·5	1·0	29	....	0·1	58
15/12/1974	7	....	....	....	1·1	1·2	1·1	30	....	0·1	80
16/12/1974	7	....	....	....	1·7	2·0	1·3	41	....	0·2	95
17/12/1974	7	11·9	12·0	14·0	1·3	2·1	1·0	49	....	0·2	137
18/12/1974	7	10·1	10·1	12·0	1·4	1·6	1·3	46	....	0·1	115
19/12/1974	7	9·8	10·0	14·5	1·7	2·1	1·3	34	....	0·1	126
20/12/1974	7	9·3	9·3	10·5	1·8	2·1	1·5	44	....	0·1	107
Average of 37 Surveys		12·9	13·4	17·7	2·2	3·0	1·6	100	6·9	0·2	154

Appendix P

CARBON MONOXIDE—RESULTS EXPRESSED IN PARTS PER MILLION

1974

24 hour Exposure Tests taken at: 57 Murray Street, Perth

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
Monthly Average	4·1	4·9	5·9	5·2	5·0	3·4	4·7	6·2	6·5	5·6	7·0	6·9
Highest 24 Hour Average	7·1	6·8	7·9	7·0	8·0	5·3	6·9	8·1	8·6	7·1	9·5	9·5
Lowest 24 Hour Average	2·4	2·8	3·5	3·9	3·1	1·9	2·9	3·8	5·0	3·3	5·0	3·1
Highest 8 Hour Average	8·0	8·0	8·0	9·0	10·0	6·4	8·1	9·7	10·0	7·7	10·0	10·0

Annual Average = 5·4 p.p.m.

Appendix Q

TOTAL HYDROCARBONS—RESULTS EXPRESSED IN PARTS PER MILLION

(Taken at: 57 Murray Street, Perth)

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
Average	2·1	1·2	1·3	1·4	1·4	1·7	1·5	1·6	1·4	1·5	1·3	1·1
Maximum Day	3·0	1·6	1·6	1·8	1·9	4·0	2·6	3·4	2·1	2·1	2·0	1·2
Minimum Day	1·0	1·0	0·9	1·2	1·0	1·1	1·1	1·1	1·0	1·0	0·8	1·0

Annual Average = 1·5 p.p.m.

Appendix R

24 HOUR EXPOSURE TESTS TAKEN AT 57 MURRAY STREET, PERTH 1974 (OUTER CITY)

(Lead expressed in micrograms per cubic metre)

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
Monthly Average	0·9	0·1	1·1	0·8	1·8	1·2	0·8	1·2	1·0	0·9	0·4	0·8
Highest 24 hour Average	1·4	2·1	3·0	1·8	4·3	4·2	2·2	3·7	3·0	2·0	0·8	1·1
Lowest 24 hour average	0·6	0·5	0·2	0·1	0·6	0·3	0·1	0·4	0·4	0·3	0·1	0·4

Yearly Average	1·0
Yearly Highest Average 24 Hour Sample....	4·3
Yearly Lowest Average 24 Hour Sample	0·1

Height of sampling point above road surface: 3 m.
Distance of sampling point from centre line of road: 24 m.
Method of sampling—low volume continuous filter.

Appendix S

FLUORIDE EMISSIONS FROM SUPERPHOSHPATE WORKS

Works	(Kilograms per hour)
Esperance	0·10
Albany	0·04
Bunbury	0·17
Bayswater	0·28
Kwinana	0·13
Geraldton	0·04

Appendix T

STATIC FLUORIDE MONITORING

(micrograms fluoride)

Direction of Site from source	W	W	WNW	WNW	NW	N	N	S	E
Site No.	1	2	3	4	5	7	8	9	10
January	220	210	330	140	65	120	64	16	16
February	130	140	90	85	55	150	100	40	42
April	....	280	230	350	220	230	150	130	80
May	....	52	70	45	50	58	40	100	58
June	110	140	38	41	24	78	18	22	48
July	....	29	36	44	24	....	38	122	138
August	24	36	58	16	56	....	50	78	72
September	95	....	90	46	45	50	51	70	40
October	150	....	79	100	75	100	110	210	91

Appendix XII

State X-Ray Laboratory

B. E. King, M.Sc., B.Sc., Physicist-in-Charge

INTRODUCTION

The Western Australian Radioactive Substances Act requires the users of x-ray equipment and radioactive substances for non-medical purposes be licenced.

Medical Practitioners or Dentists who use x-ray equipment solely for taking radiographs must register the equipment, but a licence is required for all other medical or dental uses of x-ray and radioactive substances. A licence or registration is granted by the Minister for Health who is advised by an expert committee, the Radiological Advisory Council. The members of the Council represent professions with special knowledge of the effects and uses of ionising radiation. The Council has three subcommittees which advise it on medical, dental and chiropractic matters relating to the issuing of licences in the three areas. The Chairman of the Council is Dr. J. C. McNulty, Deputy Commissioner of Public Health.

During 1974, the Council held four meetings, the Medical Committee four, the Dental Committee one, and the Chiropractic Committee three. Table 1 shows the numbers of licences and registrations in effect on 31st December 1974. Since 31st December, 1973, this represents an increase of 22% in licences and 3% in registrations.

Table 1

LICENCES AND REGISTRATIONS

Licences current at 31*st December*, 1974—	
Medical and Dental	162
Non-Medical	199
Combined Medical and Non-Medical	2
Total	363
Net increase in licences in 1974	65
Registrations current at 31*st December*, 1974—	
Medical	35
Dental	237
Total	272
Net increase in Registrations in 1974	9

References have been made in previous reports to shortcomings of the Radioactive Substances Act which have inhibited proper control of radiation hazards. A Radiation Safety Act has been drafted to replace the existing Act and it is hoped that this will be approved by Parliament during 1975.

Since 1959 it has been the practice to issue combined licences for x-ray equipment and radioactive substances. This has given rise to administrative problems and has also been a source of confusion to some applicants for licences.

Commencing November 1974, separate licences were issued for x-ray equipment and radioactive substances. Separate application forms have been gazetted for the two categories.

DUTIES OF THE LABORATORY

The Physics Division of the Laboratory is responsible to the Radiological Advisory Council for the administration of the Radioactive Substances Act. To this end, the Laboratory provides the necessary secretarial, administrative and technical facilities. The Laboratory assists users of ionising radiation with advice on radiation physics and with a calibration service for x-ray equipment and radiation measuring instruments. The Laboratory conducts an educational programme for users of radiation and provides a film badge monitoring service. Broadly, the Laboratory is concerned with delineating the nature of the exposure of the population radiation and with measures for the control of this exposure. The work of the Laboratory is described in more detail in succeeding sections of this report.

FIELD WORK

Laboratory personnel make regular visits to the premises of users of x-rays and radioactive substances. New users are advised on radiation protection requirements and existing establishments are visited to ensure that previous recommendations are being followed and that a satisfactory standard of radiation protection is being maintained. These visits contribute to the maintenance of radiation exposure of personnel at a low level and minimise the possibility of a serious radiation accident. In addition to inspecting the facilities and safety procedures, the Laboratory's Radiation Officers assist those concerned to make more effective use of radiation by advising on areas within their competence, such as medical and veterinary radiography.

The frequency of visits is determined by the extent of the radiation hazard presented. Industrial radiography operations are visited a number of times each year, whereas small hospitals and medical and dental practices may be visited at intervals of one to two years.

Due to their remote locations, it is not possible to visit some hospitals and industrial establishments as often as is desirable. Eighteen country trips were undertaken during the year, six of which were by air. Four hundred individual visits were made to licensed or registered establishments.

In October, two officers with the co-operation of the Royal Australian Navy, visited the Monte Bello Islands, the site of British nuclear tests in 1952 and 1956, to carry out a radiation survey. One island was surveyed and recommendations made for the fencing of active areas and the erection of warning notices. It is intended to survey a second island during 1975.

FILM BADGE RADIATION MONITORING SERVICE

A film badge radiation monitoring service has been provided for 17 years. It is a valuable means of detecting exposure to radiation of persons who use x-rays and radioactive substances. The number of persons monitored in 1974 was 2 142, an increase of 7% over the 1973 figure.

24 456 films were processed, a rise of 6%. The numbers monitored in various occupational groups are shown in Table 2.

Table 2

NUMBER OF PERSONS USING FILM BADGE MONITORING IN 1974 SHOWN BY EMPLOYER GROUPS

Medical, Hospitals	402
Medical, General Practitioners	73
Medical, Radiologists and Miscellaneous	118
Chiropractors	34
Dentists	814
Non-Medical	701
Total	2 142

Doses received by some occupational groups have become very small in recent years and during 1974 it was decided to lengthen the period of wearing monitoring films in the dental profession from 4 weeks to three months. At the same time the period was extended from two to four weeks for most other groups. This will have a marked effect on the workload of the film badge service

Although the regulations place the responsibility on the employer to maintain continuing records for his staff, the State X-Ray Laboratory has for some years provided a personal record card on microfilm for each person using the film badge service. The usefulness of providing such a record for the dental profession has increasingly come under question due to the smallness of the doses and the frequent changes of personnel. Concurrent with the extension of the monitoring period to three months, the maintenance of the personal record for dental workers was discontinued. Film badge doses for this group will continue to be recorded on microfilm but will be filed under the employer's name where dose information for individuals will be readily accessible.

EDUCATION

An important aspect of the Laboratory's work is the education of users of x-ray equipment and radioactive substances. Many professional groups are untrained in this area, and their members frequently have no experience of either the use of radiation or radiation safety. The Laboratory continues to give short courses on radiation safety and to lecture on radiation as part of formal courses or to give individual lectures to various groups. Educational activities increased greatly in 1974. The following courses, lectures etc., were undertaken.

Short Courses

Radiation Safety in the Use of Radiation Gauges in Industry, (Five courses).

Medical Radiography in country hospitals, (Four courses).

Lecturing Formal Courses

Mt. Lawley Technical College: Health Technologists
Perth Dental Hospital: Dental Nurses
Sir Charles Gairdner Hospital: Nurses
Leederville Technical School: Veterinary Nurses and Animal Technicians
Bentley Technical College: Health Surveyors

Lectures, Talks etc., to other groups

Individual lectures were given to the following groups:

- Western Mining Corporation, Kambalda
- Mt. Newman Mining Co. Ltd., (Newman and Port Hedland)
- Chiropractors Assistants
- Hospital Engineers
- Commonwealth Industrial Commission Inspectors
- Annual Conference of Health Surveyors
- Annual Meeting of Hospital Administrators
- Society of X-Ray Technology

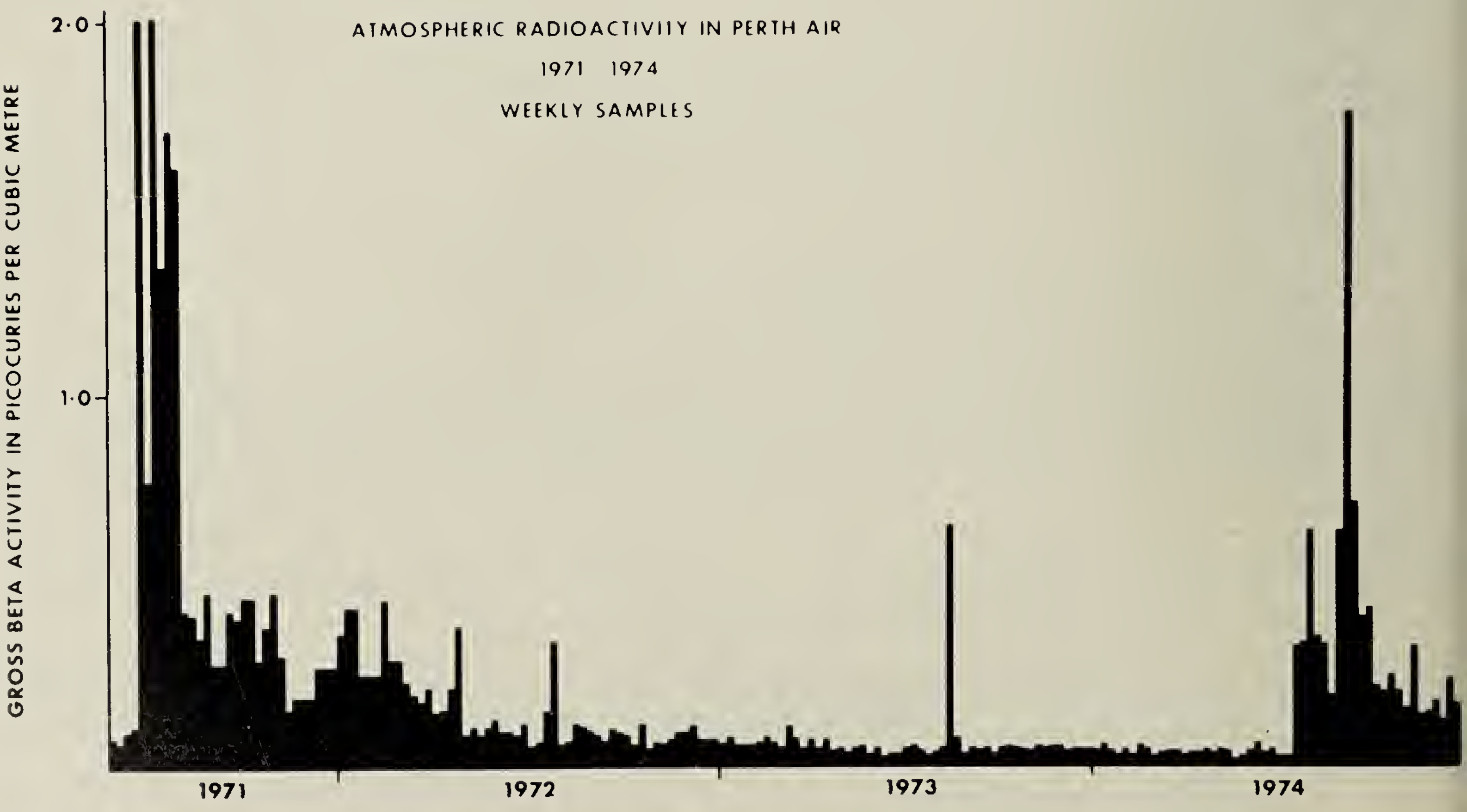
RADIATION MONITORING AND COUNTING EQUIPMENT

The Laboratory is equipped with a range of monitoring instruments for the field measurement of alpha, beta and gamma and x-radiation. The gamma and x-ray sensitive instruments cover a wide range of radiation energies from the low energy x-ray emission of colour television receivers and discharge tubes used for demonstration purposes in schools, to the high energy gamma rays from Cobalt-60.

Low level gamma counting equipment with a 512 channel analyser is installed in the laboratory for the measurement and analysis of gamma emitting radioactive substances. This equipment utilises a 3" × 3" Sodium Iodide crystal and was augmented late in the year by a pure germanium detector for gamma analysis.

ENVIRONMENTAL RADIOACTIVITY

The Laboratory has a continuous monitoring programme for radioactivity in rainwater and the atmosphere. Gross beta activity in air and rainwater samples is measured routinely and gamma analysis is carried out when warranted. Short term increases in radioactive fallout were again detected following the French nuclear tests in the Pacific Ocean during 1974. The variations in the weekly gross beta levels for the period June 1971 to December 1974 are shown in the figure.



There has been intense public interest in these tests in recent years and many requests for information are received from individuals, groups and the news media.

RADIATION STANDARDS

The Laboratory maintains a Sub-Standard X-Ray Dosemetre and Standard Radioactive sources to permit calibration of a wide range of monitoring equipment and superficial therapy x-ray equipment.

TECHNICAL ADVICE

Laboratory staff spend considerable time in giving advice to applicants for licences and registrations, to licensees and to members of the public, on radiation protection and radiation health problems. This includes advice on the design of radio isotope laboratories and on radiation protection in industrial, medical, dental, chiropractic and veterinary establishments.

NON IONISING RADIATION

The Laboratory is now responsible for monitoring sources of non-ionising radiation such as microwaves and lasers. There is no legislation covering the hazards from these radiations, but the users are advised on protective measures. Microwave ovens are used in many delicatessens, restaurants and take-away food shops for the rapid heating of food. Ovens which are inadequate in their design or maintenance may leak microwave radiation which is potentially injurious.

Microwave ovens are being marketed in rapidly increasing numbers for use in domestic as well as commercial situations. New ovens sold in Australia must now comply with the standards of the State Electricity authorities, and the Laboratory carries out spot checks on the various makes and models to ensure compliance with that part of the standards dealing with leakage of microwave radiation. Ovens being marketed in 1974 were found to be satisfactory in this respect.

A smaller number of older ovens which exhibit excessive leakage are still in use. The owners are being encouraged to remove them from service.

VETERINARY RADIOGRAPHY AND RADIOTHERAPY

The number of veterinarians licensed to use x-rays has increased greatly in recent years and at the end of 1974, 41 licences for veterinary radiography were current. Veterinarians are encouraged to anaesthetise animals for radiography, but if this is not practicable and an animal must be held, then a licence condition requires protective clothing to be worn. The Radiological Advisory Council has not yet introduced any standards which must be met by the veterinary x-ray equipment, but the owners are encouraged to fit light beam diaphragms and the correct filter. The holding of films by an assistant is not permitted except by means of a holder with an extended handle.

Recent interest has been shown by veterinarians in using sealed radioactive substances for radiotherapy. Suitable courses of training for this purpose are being investigated.

ACKNOWLEDGEMENTS

The staff of the Physics Division number four physicists, two radiation officers, a technician, one full time and two part time clerical. They have carried an increasing workload without complaint, and it is a pleasure to place on record the conscientious and enthusiastic manner in which they perform their duties. The co-operation of the staff of the Engineering Division is also greatly appreciated.

Appendix XIII

Library and Technical Information Service

J. F. Woolcott, M.B., Ch.B., Medical Officer-in-Charge

The main event of 1974 was the move to new premises. For the first time in my quarter-of-a-century work with the library the premises allotted allowed adequate space for reader users and provision for future expansion. As far as can be gauged, the library space should be sufficient for the term of the current lease of " Curtin House "—20 years. However, prophesying that far ahead is a risky business and it only requires a major shift in or addition to, Departmental responsibilities for its impact on the library to invalidate all such calculations.

An event particularly gratifying to me was the commencement of provision of direct library resources and librarian skills to the State Health Laboratory Services in their new building. Mrs Janet Davis who previously " acclimatised " herself to the procedures and resources of the main P.H.D. library commenced the work of the S.H.L.S. branch library in March. As is always the way in such cases, the volume of work she was asked to handle started in a small way but grew steadily as the value of having a trained librarian available became apparent to the staff of the Laboratory Service. Close proximity to the Medical library of the University of W.A. has meant that extensive reference resources are nearby and accessible, through the branch librarian, to S.H.L.S. staff. In the period March to December 1974, the laboratory library met internal requests numbering 695, borrowed 267 items from the Medical Library and made 6 direct and external loans. It will be interesting to see how these numbers grow in the next few years.

Work done by the main P.H.D. Library is shown in the following statistics.

LOANS

INTERSTATE AND OVERSEAS LOAN

Country or State	1970	1971	1972	1973	1974
New South Wales	37	24	30	36	43
Victoria	19	11	30	20	22
Queensland	12	6	17	5	32
South Australia	17	4	12	12	33
Tasmania	9	12	11	11	22
Northern Territory	1	2	3	3	1
A.C.T.	2	2	5	15	28
New Zealand	2	....	1	2	9
Papua New Guinea	....	....	4	10	4
Singapore	....	....	....	....	2
Totals	99	61	118	114	196

INTRASTATE EXTERNAL LOANS 1974

Hollywood	166
Medical Library	128
W.A.I.T.	101
Department of Agriculture	92
Mental Health Services	45
University of W.A.	42
Library Board	32
Princess Margaret Hospital	31
Government Chemical Laboratories	30
Public Works Department—M.W.B.	27
Fremantle Hospital Library	22
CSIRO	20
Fisheries and Fauna	16
W.A. Government Railways	16
Dept. of Environmental Protection and Decentralisation	15
Mt. Lawley Teachers College	12
Royal Perth Hospital Library	10
Forests Department	8
Royal Perth Hospital Nurses Library	7
Churchlands Teachers College	6
Geological Surveys	5
Department of Housing and Construction	5
Murdoch University	5
W.A. Museum	4
Aust. Farmers Co-operative Ltd.	4
W.A.I.T. (Kindergartens Teacher College)	4
Alcoa	3
Main Roads	3
Parliamentary Library	3
Department of Community Welfare	2
K.E.M.H.	2
PMG Engineers Library	2
Secondary Teachers College	2
State Electricity Commission	2
Dental Library	1
Department of Environmental Protection	1
Fremantle Prison Hospital	1
Education Department	1
Total	876

This compares with 860 in 1970, 981 in 1971, 996 in 1972, 806 in 1973.

It can be seen that for this year there was a big jump in the number of interstate loans and a new borrower, Singapore, using our resources.

BORROWINGS

INTERSTATE EXTERNAL BORROWINGS

Source	1970	1971	1972	1973	1974
New South Wales	11	9	34	35	40
Victoria	24	15	37	27	36
South Australia	41	29	78	82	145
Queensland	....	3	9	7	13
Tasmania	1	....	....	....	....
A.C.T.	8	13	47	71	138
Totals	85	69	205	222	372

INTRASTATE EXTERNAL BORROWINGS

Medical Library	307
University of W.A.	186
Library Board	103
Department of Agriculture	60
W.A.I.T.	30
Government Chemical Laboratories	28
Mental Health Services	7
C.S.I.R.O.	6
R.G.H. Hollywood	4
S.H.L.S.	4
Fisheries and Fauna	3
Fremantle Hospital	3
Royal Perth Hospital	2
King Edward Memorial Hospital	2
Mt. Lawley Teacher's College	2
Dental Hospital	2
Geological Survey	1
S.C.G. Hospital	1
Total	751

This compares with 372 in 1970, 265 in 1971, 662 in 1972, and 497 in 1973.

The large increase in our interstate borrowings is due to greater use on our part of the National Library of Australia.

NEW PUBLICATIONS 1974

P.H.D.	442	Cunderdin	3
Community Health Services	220	Murray District Hospital	3
S.X.R.L.	66	Roebourne	3
Dental Health Services	66	Government School of Nursing	3
Child Health Services	57	Geriatrics Unit	3
State Health Laboratories	53	Katanning	3
Geraldton	28	Albany	3
Kalgoorlie	25	Augusta	2
Port Hedland	25	Broome	2
Health Administration Course	22	Exmouth	2
Mt. Henry	20	Kununurra	2
Swan Districts	17	Paraburdoo	2
Derby	16	Wickham	2
Fitzroy Crossing	14	Dampier	2
Northam	13	Harvey	1
Gnowangerup	11	Quairading	1
Esperance	11	Yampi Sound	1
Marble Bar	8	Medical Department	1
Carnarvan	8	Clean Air	1
Warren District Hospital	8	Wyalkatchem	1
Osborne Park	8	Planning, Maintenance & Supply	1
Bunbury	7	Ravensthorpe	1
Sunset Hospital	7	Bentley	1
Merredin	7	Bridgetown	1
Collie	6	Southern Cross	1
Automatic Data Processing	6	Onslow	1
Narrogin	6	Chest Clinic	1
Busselton	6	Kununoppin	1
Wyndham	5		
Extended Care Section	4		1 244
Meekatharra	3		

Previous figures were:—1970, 919; 1971, 1 104; 1972, 889; and 1973 1 061. The major reason for the increase over last year is explained by the 220 publications supplied to Community Health Services.

JOURNALS

Additional New Journals Secured	31
Average Monthly Circulated	1 335
Total Journal Titles now received is	731

PHOTOCOPIES

Monthly Average of Photocopying of Library Material	958

JOURNALS CIRCULATED TO PRINCIPAL INSTITUTIONS 1974

Community Health Services	71
Health Education Council	45
Chest Clinic	36
S.C.G.H.	31
S.X.R.L.	30
Fremantle Prison Hospital	29
Medical Library	19
Government Chemical Laboratories	18
Nurses Board	18
Mental Health Serviccs	7
Government School of Nursing	3
Department of Agriculture	3
Total	310

I wish to take this opportunity of expressing my grateful thanks to my staff who handled all the moving of the entire library stock from 57 Murray Street, to 60 Beaufort Street by themselves while I was absent on long-service leave. This was not due to deliberate timing. Tens of thousands of volumes and journal issues were moved and it is to the staff's credit great that the library was in business in the new premises in such a short time.

Appendix XIV

Health Surveying Branch

J. F. Slattery, M.R.S.H., F.A.I.H.S.

Chief Health Surveyor

Predictably, while the prevailing economic situation had effect on the activities of the Branch during 1974, resulting in the curtailing of some activities, and deferring of others, a State wide Health supervisory service was continued, and the primary function of the Branch, to measure and control specific environmental hazards relating to human health, was maintained.

Set out hereunder is a summary of the activities of the Branch for 1974.

1. STAFF

Sufficient staff to adequately deal with the increasing problems relating to all aspects of environmental Health remains a constant problem. During the year resignations and retirements occurred in both the general and meat inspection areas, and although approval was given to recruit sufficient staff to fill the consequential vacancies, an increase in the number of existing staff was not allowed.

With the continued population and industrial expansion of the State, there is a corresponding increasing demand upon the time and expertise of the individual officer, and an increase in staff to meet all needs is critical.

2. ACCOMMODATION

For some years, in common with other sections of the Department, this Branch suffered administrative and organisation problems, as a consequence of inadequate office accommodation. A welcomed improvement was made in 1973, when the Department owned Grosvenor House building, was converted to office accommodation and the Branch transferred " in toto " to the new premises.

Bringing together the previously fragmented sections of the Branch enhanced administration, and allowed an improved service to the Public by creating five sections, each with a clearly identifiable area of environmental Health Activity.

This situation was further enhanced, when late in the year, together with other components of the Department, the Branch was transferred to the new Medical and Health Services Centre in Curtin House.

3. HEALTH SURVEYOR—TRAINING

At the commencement of the previous year, the first course designed to train Health Surveyors at tertiary level was introduced at the Western Australian Institute of Technology. The course is of three years duration requiring full time attendance, and the award is an " Associateship in Environmental Health " which is anticipated to be elevated to degree status by the end of the forthcoming year.

At the commencement of the current year, a course designed for a " diploma in Environmental Health " was introduced by the Technical Education Division of the Education Department. The Diploma course is of five years duration requiring part time attendance.

The introduction of these courses is the culmination of several years effort by Departmental Officers, Representatives of the Australian Institute of Health Surveyors and others, who recognised the need for a level of training and expertise, commensurate with the demands of modern Health Technology.

The award obtained by the completion of either course will become the recognisable qualification for appointment as a Health Surveyor in this State and will replace the Diploma's of the Royal Society for the Promotion of Health which has applied from 1911.

Branch officers remain active in the production and presentation of both courses.

4. TRAINEE HEALTH SURVEYORS

This continues to be a practical and worthwhile activity and has proven to be of particular value to both the Branch and the Department.

A total of eleven fully qualified officers have now emerged from the scheme during the seven years of its operation.

All four of the Trainees currently employed successfully passed their end of year examinations, and two having completed their final examinations and attained the prescribed Royal Society of Health qualifications, were transferred to permanent positions on the Meat Inspection staff.

There is continued interest for appointment as a " Trainee " by young men from both within and outside the service, and the continued success of the scheme appears assured.

During the year the scheme was extended to include the training of Field Assistants from the Community Health Services.

The arrangement, evolved in co-operation with the Senior Nurse Educator of the Community Health Services, provides for Field Assistants to be attached to the Branch in Groups of two, for a period of three months, during which time they were given practical instruction and experience in the aspects of environmental health which relate specifically to their own duties.

Four Field Assistants were trained during the year, the arrangements have been made for two more to commence early in the New Year.

5. HEALTH LIAISON GROUPS

The four Health Liaison Groups met regularly during the year, with a Departmental Officer present on most occasions.

These groups which were formed to enhance communication between the Department and Local Authority Health Surveyor, and to enable an exchange of views and discussion between people with similar areas of interest, have now operated successfully for eleven years, and a successful future appears assured.

6. REGIONAL HEALTH GROUPS

The extensive examinations of all existing Regional Health Groups commenced the previous year was continued, and is continuing.

Where the District needs of a particular Local Authority do not require the full time services of a Health Surveyor, and where economic factors preclude such appointment, a Regional Health Group is formed, when two or more adjoining Local Authorities are combined to share the services of a Health Surveyor and the associated costs.

The Administrative and financial arrangements are determined with regard to the particular prevailing circumstances, and as circumstances continually change, constant review is necessary to ensure that adequate Health supervision is maintained and that economic imbalance does not develop.

During the year, three groups were re-organised following investigation and discussion with the affected Local Authorities, and plans for re-organisation of two other groups have reached an advanced stage.

7. HEALTH SUPERVISION—NORTH WEST AREAS

The Kimberley Health Region which comprises the Districts of Derby, Broome, Kununurra, Wyndham and Halls Creek is supervised by a Departmental Officer resident at Derby, and although a change of officers was affected during the year, the service was maintained as previously.

The region has doubled in population and development since the inception of the scheme and, it has become increasingly difficult for the one Officer stationed in the area to provide adequate Health Supervision.

However, due to economic difficulties, and other factors, including accommodation the proposal to re-organise the Region into two during the current year had to be deferred, but will be re-examined during the forthcoming year.

Regular visits by a Departmental Officer was maintained to the inland North West areas including the Pilbara area, where extensive proposed development will undoubtedly result in change to the arrangement, and the situation is currently being examined.

8. MEAT INSPECTION

Meat Inspection services at the four major metropolitan abattoirs was maintained during the year.

As with previous years, the Officers engaged on this activity are also responsible for supervision of Works Sanitation, hygiene of personnel, supervision of methods of storage and transport of carcase meat, and the supervision of practical tuition of Student Health Surveyors.

Liaison and co-operation with the Chief Veterinary Officer of the Department of Agriculture with matters relating to animal diseases was maintained. Specimens identified and forwarded to the appropriate laboratory included Tuberclosis in Pigs, Cysticercus Bovis in Cattle, Cysticercus Ovis in Sheep and poly-arthritis in Pigs.

Recruitment of Officers to occupy the new positions created the previous year, to meet the increasingly exacting demands of the meat inspection activity, was completed and while the existing situation remains unaltered, each of the works for which this Branch is responsible is now adequately staffed.

However, proposals for a New Abattoir to be constructed in the metropolitan area in the forthcoming year, will undoubtedly upset this situation, and the need for additional staff will again be manifest.

Late in the year, action was once again initiated by other Departments and persons to have the responsibility for meat inspection removed from the Department of Public Health and placed elsewhere.

Despite previous rejections by the Department and Government, this is a recurring event extending over more than a decade.

It is expected by the affected officers, that the current attempt will once again be abortive.

Figures relating to the annual slaughtering and inspection of food animals throughout the State are shown in appendix " A ".

9. MEAT INDUSTRY

The general surveillance of the Meat Industry including works, transport and personnel was continued during the year.

Including one new works which commenced operation during the year, there are now 68 registered works in country areas of the State of which 14 are licensed for the export market.

Proposals for the construction of two further major works were deferred pending an examination by the Proprietors of the current economic trends. It is now expected that construction will commence in the forthcoming year.

While some deficiencies exist, there is a steadily improving standard of hygiene and sanitation.

A survey made to establish the adequacy and competency of meat inspection services throughout the State, revealed that where deficiencies existed, these were mainly attributable to the economic loss being incurred by a Local Authority where the costs of providing the service exceeded the inspection fees collected.

This survey was subsequently extended to include a detailed examination of the economics of Meat Inspection, conducted conjointly by Administrative Officers of the Department and the State Treasury, which resulted in the various scales of inspection fees being increased to a commensurate level.

With the economic problem now removed, effort is being directed towards ensuring that at every place where meat is prepared for human consumption, an adequate and proper meat inspection service is provided. The needs at each individual works is being examined, and suggestions for improvement discussed with the affected Local Authority. As a consequence several Local Authorities engaged additional staff, and others have re-arranged duties to allow the responsible officer to give proper attention to his meat inspection responsibilities. This activity is continuing.

Other matters relating to the Meat Inspection included:—

(a) Continuation of effort to establish uniform meat inspection practices throughout the State. The codes of practice for " meat inspection " and " hygiene of works " commenced the previous year were completed and copies distributed to all officers involved in Meat Inspection duties.

(b) Continued surveillance of the " feed lot " method of cattle raising and ensuring that proper standards are maintained.

(c) The commencement of a survey to establish the manner of slaughter of " farm killed vealers " and the associated Inspection practices.

(d) In co-operation with other affected Departments and persons' examination for suitability was made of proposed sites for Tanneries and wool scouring works. Plans were examined and necessary meetings attended.

(e) Attendance by a Branch Officer at regular meetings of the Standards Association of Australian Sub-Committee dealing with standards of Safety in the Meat Industry.

(f) Regular monitoring of effluent from all Country Slaughter yards for presence of salmonella.

(g) Continued liaison with the Department of Agriculture and Meat Inspection Services throughout the State concerning the animal diseases eradication programme, including Tuberculosis and Brucellosis.

During the year 25 specimens of suspected C. bovis were submitted for laboratory examination.

10. FISHING INDUSTRY

General surveillance of all facets of the industry was maintained.

Existing processing plants were inspected, and discussions and meetings on improving structural standards of works and vehicles was discussed with Representatives of the Rock Lobster and Prawning Association.

The examination of standards of hygiene and sanitation of the Abrolhos Islands, commenced the previous year in co-operation with the Department of Fisheries and Fauna, was continued and generally improving standards is the result.

The initial opposition expressed by the members of the Industry has been replaced by an attitude of co-operation. Local Committees have been formed, clean up campaigns organised and more sophisticated and acceptable methods of disposal of wastes are being gradually introduced.

Further improvement is still required, and surveillance is continuing.

11. FOOD AND LIQUOR

Food

Activities for the year in this area included investigation of proposals for marketing of foodstuffs. Investigation of various foods for compliance with the Food and Drug Regulations in relation to compositional standard, additives and labelling. Investigation of specific complaints and outbreaks of food poisoning; examination of premises, and advice to the Public and other persons concerned.

The control of environmental hazards relating to food involves premises, equipment and personnel. Manufacturing, processing, storage and transport, and with the increasing sophistication of all facets of the food industry, the activities relating to food continues to increase in application and importance.

Two particular events which occurred during the year shows that constant vigilance is required to protect the Public from food borne disease. During the period June/July a food poisoning outbreak attributable to oysters resulted in 125 people becoming ill and involved 31 individual eating houses. During the resultant investigation a total of 464 samples of oysters were submitted for chemical analysis and bacteriological examination, and 76 faecal specimens obtained from affected individuals and submitted for laboratory examination.

A method of purification of oysters has now been evolved in co-operation with the Industry. A pilot plant has been constructed and the results will be evaluated during the forthcoming year.

The second matter involved the sale of non edible form of mushrooms resulting in six people becoming ill. With the assistance of Officers of the Department of Agriculture, the remedial action taken included an education programme on methods of mushroom identification.

However, there is an increasing public awareness of the Health hazards relating to contamination and spoiled foods, which is reflected in the annually increasing number of complaints received from individual members of the Community. During the year, 450 complaints were received, by comparison 366 complaints were received in 1973, and in 1972, 280.

The complaints received during the current year are made up as follows:—

Asparagus	2
Baked Beans	2
Beer	4
Biscuits	3
Bonox	2
Bread	26
Cakes	10
Cereals	13
Chewing Gum	1
Chillies	3
Coffee	1
Confectionery	10
Cool Drinks	16
Eggs	1
Fish	11
Flour	3
Food Handling	4
Food poisoning	141
Food Premises	15
Fruit (canned)	6
Fruit (dried)	1
Fruit Juice	9
Honey	2
Jam	7
Meat and Meat Products	67
Milk and Milk Products	30
Mushrooms	2
Nuts	2
Onions	1
Pet Meat	1
Pickles	1
Pies	13
Potatoes	1
Rice	1
Sandwiches, Rolls	8
Sauce	2
Shellfish	3
Soup	4
Takeaway Foods	13
Vegetables	6
Water	1
Yoghurt	1
Total	450

Sampling

Various programmes of both a special and routine nature resulted in the taking of 1 142 samples of food products, of which 423 were for microbiological examination and 719 for chemical analysis. An additional 18 samples of a miscellaneous nature were also taken.

Details are as hereunder:—

Bacteriological Samples

Cake	6
Chicken	32
Confectionery	20
Curry	3
Eggs	1
Fish	16
Fruit juice	1
Imitation Cream	30
Infants Food	16
Meat and Meat Products	160
Milk and Milk Products	28
Pies	5
Rice	3
Shellfish	45
Take Away Food	18
Tomatoes	1
Vegetables and Salads	36
Water	2
Total	423

Chemical Samples

Asparagus	3
Bonox	1
Bread	3
Cake	6
Cereal	2
Chicken	17
Coffee	1
Confectionery	2
Cool Drinks	6
Eggs	63
Fish	361
Flour	4
Fruit	9
Fruit Juice	74
Infant Food	1
Meat and Meat Products	61
Milk and Milk Products	16
Nuts	5
Pies	9
Shellfish	17
Take Away Foods	2
Tea	2
Tomatoes	6
Tripe	22
Vegetables	8
Vinegar	15
Water	3
Total	719

Miscellaneous

Leather Thongs	1
Powders, Dusts	3
Thermos Flask	1
Detergents, Soaps	4
Iron on patch	1
Soil	3
Worms, beetles	2
Aqua-Kem	1
Cardboard (Chemicals)	1
Toys	1
Total	18

Other matters include:—

(i) Instigation and sampling of meats for fat—lean content, at the request of the C.I.B.

(ii) Liaison with affected Government Department in order to establish standards for canteens in Government buildings.

(iii) Lecturing of formal and *ad hoc* groups on food handling procedures.

(iv) The examination of certain toys for toxic materials.

(v) The continued examination of the compositional standards of fruit juices.

(vi) The re-drafting and updating of the Food Hygiene Regulations.

Special projects conducted under the auspices of the National Health and Medical Research Council, in co-operation with the Department of Public Health, Food and Nutrition Officer, Mr. J. Edinger included:—

(i) Determination of levels of mercury in fish : Three hundred and seventy samples of shark and small fish were obtained and submitted for analysis, and a survey commenced of fish retail premises to determine the extent at which shark is being sold.

(ii) The continuation of the " market basket survey " which involves the taking of pre-determined samples at pre-determined periods, for assessment of pesticide residuals.

A further project involving a computor determined programme of sampling of selected foods for determination of microbiological standards is also being conducted.

Imported Foods

The extent and diversity of imported foods arriving from overseas and interstate continues to increase and the full time services of one officer at the Fremantle Wharf and one at the Kewdale Marshalling Yards was maintained throughout the year, assisted by others as required.

At both centres, routine physical examination of food was conducted, samples taken for chemical analysis and bacteriological examination, and routine organoleptic tests conducted. Labelling requirements were checked, and methods of storage and transport supervised.

Although a wide variety of imported foods is examined, frozen fish, off loaded at Fremantle Wharf continues to be the major imported food. During 1974, a total of 3 368 498 kgs was examined and inspection fees amounting to $5 677.74 collected. Additionally, at Fremantle Wharf, regular inspections were made of Ships Stores, and particular examinations conducted at the request of the Australian Department of Customs, and the Port Authority.

One example being the fish cargo of the siezed Taiwanese fishing vessels, whose 82 tonnes of frozen fish was examined and judgement made on the suitability or otherwise for human consumption.

All food examined and determined to be not fit for human consumption is condemned and destroyed under supervision.

The need to maintain the supervisory service of imported foods is shown by the following list of foodstuffs condemned and destroyed during the year:—

Biscuits	2 996 kg	Infestation, dampness, contamination
Cake	1·18 kg	Damaged
Cheese	68·36 kg	Exposure, Staining, Damage
Coconut	2 295·89 kg	Exposure, contamination
Confectionery	70·10 kg	Exposure, contamination
Dates	2 408·60 kg	Exposure, contamination, damage
Flour	11·35 kg	Exposure
Fish (canned)	439·11 kg	Damage
Fish (Dried)	56·65 kg	Putrefaction, deterioration, infestation
Fish (frozen)	2 416·19 kg	Exposure, putrefaction, deterioration
Fruit	1 440·22 kg	Rust, mould, infestation, damage
Meat (canned)	52·51 kg	Damage
Mushrooms	599·25 kg	Damage, rust, exposure
Nuts	312·51 kg	Exposure
Olives	1 457·99 kg	Mould, deterioration, exposure
Olive Oil	87·87 kg	Exposure
Sauce and Pickles	17·12 kg	Damage
Tea	767·19 kg	Exposure
Tomatoes (canned)	2 984·39 kg	Rust, blown, damage
Vegetables and Salads	1 508·56 kg	Rust, putrefaction, damage

Total nett weight of food condemned 20 626·91 kg

Liquor

A total of 593 visits were made to licensed premises during the year, made up of 344 metropolitan and 249 country.

Each visit entailed a sanitation survey of the premises, examination of the hygiene standards of food areas, and an examination of the cool rooms, beer lines, and the presence of dye in drip trays.

On site testing of spirits was conducted with the Sykes Hydrometer and where standards were found to be not in accordance with the Food and Drug Regulations, legal samples were taken and submitted for analysis. A total of 47 samples of various brands of spirits were analysed during the year.

Where circumstances warrant it, legal proceedings were instigated.

Details of the number of premises visited, samples taken and legal proceedings are as hereunder:—

Licensed Premises Visited

	Current Licenses		Inspections	
	Town	Country	Town	Country
Hotels	155	312	152	175
Limited Hotels	16	6	16	2
Taverns	24	7	17	5
Restaurants	68	28	50	20
Winehouses	16	1	11	....
Clubs	125	159	68	45
Spirit Merchants	44	15	4	....
Licensed Stores	165	115	1	....
Cabarets	23	4	15	1
Routine regular inspection				
Aust. Winehouses	17	6	....	....
Catering Permit	....	....	3	....
Theatre	4	....	....	....
Function	....	....	6	....
Packet	5	....	....	....
Railway Refreshments	....	....	1	....
Canteen	91	9	....	1
Clubs—Unlicensed	18	55	....	....
Brewers	4	1	....	....
	775	718	344	249

Samples Taken for Analysis

Rum	7
Whisky	15
Bourbon	2
Brandy	2
Cognac	3
Vodka	2
Sherry	2
Cooking Wine	2
Medicated Wine	1
Beer	11
	47

Legal Action

Sale of below standard spirits—	
Hotels	5
Limited Hotels	1
Clubs	1
False Trade Description—	
Hotels	1
Limited Hotels	1
Cabarets	1
Lack of Blue Colouring	
Hotels	5
Clubs	2

Total fines and costs $624.88

The professional advice and assistance given by the Food and Nutrition Officer, Mr. J. Edinger, is again acknowledged.

Other matters relating to food included—

(a) Examination of standards of hygiene of food processing premises proposed as suppliers to Government Hospital by Public Tender.

(b) Regular inspections of all food handling premises under the control of the State Gardens Board.

(c) In co-operation with the Architect Division of the Public Works Department, the evolving of hygiene standards to be applied to canteens in Government owned or occupied premises.

12. PUBLIC BUILDINGS

During the year 1971 new building activities, classed as Public Buildings under Part VI of the Health Act were submitted for examination by officers of the Branch, representing an increase of fourteen per cent over the previous years.

Major projects included:—

1. The Channel Seven Edgley Entertainment Centre, which seats 8 000 people, and in addition to the main auditorium contains two cinemas, two taverns and a restaurant.
2. The Cine Centre, which contains two cinemas and a tavern.
3. The Murdoch University Buildings.
4. Buildings extensions to the Western Australian University and the Western Australian Institute of Technology buildings.

Other building projects included—Schools, Hospitals, Night Clubs, Churches, Nursing Homes, Kindergartens, Grandstands, Hotels, Public Swimming Pools, and Public Halls.

The total value of all buildings examined was estimated at sixty one million dollars.

Existing Public Buildings throughout the State now number in excess of four thousand, and while staff commitments did not allow examination of all, any specific matter, brought to the notice of the Department was investigated, and routine checks were made by officers of the Branch when visiting a particular District.

In all instances, examination of Public Buildings included the Health and Public safety aspects of structural stability, means of egress, internal movement of patrons and emergency escape facilities, combustibility of materials used, the provision and efficiency of fire fighting appliances, the electrical installations and provision of Sanitary and Ablutionary facilities.

Where necessary, consultations were held with officers of the W.A. Fire Brigades Board, the examining Engineers of the Public Works Department and the designing Architects.

During the year, two Public Buildings were found to be unsafe for Public use, and were closed by order of the Commissioner of Public Health: One building was subsequently demolished and the other repaired.

Another building was found to be insulated with a material below the specified fire rating, and the supplying Company was required to re-treat the material to the required standard, and to improve production methods to ensure that compliance with the specified standard was maintained.

Two other buildings were destroyed by fire, but in neither instance did injury to persons result.

A State wide survey of Public Swimming Pools was commenced and is continuing: The purpose of the survey is to determine that the required standards of Public safety and Sanitation are being observed, and includes an examination of methods of use and storage of chemicals and swimming pool water standards: Where deficiencies are noted, remedial action is instigated, and where necessary instruction of Pool Attendants conducted.

To the end of the year under review, twenty centres embracing 70 Public Swimming Pools had been visited.

An area of increasing concern is the extent of over crowding occurring in some classes of Public Building, particularly the type which caters for the younger members of society where both dancing and entertainment are provided.

Methods of enhancing control of these particular situations is currently being investigated.

Other matters relating to Public Buildings attended to, included the training and examination of Swimming Pool attendants and Proprietors in co-operation with the National Safety Council : The commencement of an investigation to determine the efficiency of proposed new methods of purification of swimming pool water, and the commencement of a survey to determine the practicability of providing, in certain types of Public Buildings, easier means of ingress and egress for use by paraplegic persons.

Late in the year, an action, similar to that relating to the Meat Inspection activity, was initiated by other persons and organisations in an effort to remove from the Department (and other affected Departments) all activities relating to the fabric of a building, in particular Public Buildings, and place them elsewhere. The proposals suggested that all matters relating to a building should be brought under one Act—and that a new Department be created to administer the new Act.

A subsequent Committee of enquiry established by the State Government rejected the proposals.

13. CARAVAN PARKS

The number of Caravan Parks now existing throughout the State, coupled with the increasing usage by Holidaying members of the Public, still requires the full time services of one officer to ensure that existing Parks are maintained in a satisfactory standard, and that new proposals are constructed in accordance with the relevant regulations.

During the year, the construction of two new parks was commenced in the metropolitan area and three other completely re-constructed and upgraded.

In the Kimberley District, a new park is being developed at Kununurra and Fitzroy, extensions and improvements are being carried out to the Parks at Broome and Derby, and improvements and extensions to the Halls Creek park are currently being considered.

Two new parks are proposed for the Pilbara area at Carnarvon and Tom Price and extensions and improvements are planned for Onslow and Shark Bay.

In the South West Division, seven new parks were developed and extensions conducted to six others.

During 1973, the regulations and by-laws relating to Caravan Parks were reviewed, and the various amendments and additions were promulgated in February of the year under review.

The revised legislation provides for more stringent conditions for effluent and sullage disposal, improved fire fighting facilities, additional refuse receptacles, area lighting and other related matters.

The new requirements were incorporated into the design of all new parks and when extensions and improvements were conducted to existing parks; other parks are gradually introducing the requirements following a visit by a Departmental Officer. Although the desired objective is to have every caravan park in the State visited at least once in each year by the Departmental Officer, for a number of reasons this is not always practicable, and it becomes necessary to evolve a " Priority for Attention " system.

The system has proven effective, and ensures that maximum effort is diverted to the appropriate area.

As with previous years, over-crowding of parks with the resultant impact upon facilities and services, remains a constant problem particularly during peak holiday periods.

Particular attention is still being directed to this aspect and must continue.

14. ROYAL AGRICULTURAL SHOW

As with previous years, control of general sanitation of the grounds and the control of food handling premises was supervised by Departmental Officers.

The period of the show was extended by one day, and now encompasses nine consecutive days and nights.

The number of food handling premises continues to increase, and this year one hundred and forty establishments were examined and Permits issued when Health requirements had been complied with.

The continued liaison with the Royal Agricultural Society is resulting in more stringent Health requirements being included in the forms of contract required to be signed by Stall Holders, and an increasing awareness by stall holders that the standards must be observed is resulting in steadily improving conditions with each successive year.

This year, there were no food poisoning cases reported, and one food handling stall only, was closed in the interests of Public Health.

15. PEST CONTROL

As with other Branch activities, the demands upon this section are increasing. The section is specifically responsible for pest control treatment of Government and Semi Government buildings, but in addition is responsible for advising Local Health Authorities, the Australian Department of Health, the private sector of the community and other on specific control measures for pest eradication, and the officers must continually examine, and test new preparations and chemicals proposed for pest eradication, in order to advise on both the efficiency of the preparation and the human safety aspects.

As much of the pest control activities involves the use of chemicals which can only be used with safety when the premises are vacated, the extent of " out of hours " work is still increasing.

Plans for an extension of activities to include all buildings controlled by the Department of Community Welfare including the North West areas were completed, and the necessary vehicle and equipment obtained.

During the year, the long proposed new Pest Control premises were completed, and it is expected that the section will transfer its operation from the old East Perth premises to the new building, early in the year.

In addition to housing the Pest Control Section, the new building incorporates a lecture auditorium for all purposes, and accommodation for the Public Health Museum and associated work shops and preparation room. The Museum is to be transferred to the new building conjointly with the moving of the Pest Control section.

The activities of this section for the year included the following:—

(a) Training of mature age fly control officers for employment by Local Health Authorities.

(b) Training of Pest Control Officers at Hospitals and Government institutions.

(c) Investigating and controlling of a mice plague at the Kalgoorlie District Hospital.

(d) One hundred and sixty four inspections relating to fly control were made of Government Hospitals and Institutions, eighty five of metropolitan abattoirs, one hundred and eighty of skin drying sheds, forty four of metropolitan sewage treatment works and sixty four of railways truck washing out yards.

Details of specific pest control treatments are as under:—

No. of Cases		No. of Cases	
264	Cockroach	16	Pigeon
79	Termite	8	Pigeon Mite
44	Red Back Spider	6	Fly
37	Mosquito	....	Drug Store Beetle
40	Silverfish	7	Bed Bug
9	Honey Bee	3	Sand Fly
22	Flea	3	Weevil
16	Ant	1	Carpet Beetle
370	Rodent	1	Crab louse
4	Midgie	1	Centipede
2	Wasp	3	Cat

16. METROPOLITAN FLY CAMPAIGN

This was conducted on similar lines to previous years and is a constant activity involving the co-ordination of Local Health Authority effort in fly control, the training of mature age fly control officers for employment by Local Health Authorities during the Autumn and Spring campaigns, and the evaluation of results obtained.

General and specific complaints relating to fly breeding were examined and advice on remedial measures given, and various preparations and appliances proposed for control or eradication of flies examined and the efficiency determined.

The relevant details relating to the current year's campaign are shown as appendix.

17. MOSQUITO CONTROL

As with fly control, this is a constant activity. Liaison is maintained with affected Local Authorities and corrective procedures advised.

Specific and general complaints are investigated and broad area surveys were again conducted on portions of the Canning area and various areas of the South West.

Methods of control were evolved and results will be evaluated during the forthcoming year.

18. LAND SUITABILITY

Requests from the Town Planning Board for an opinion on the suitability or otherwise of land intended for building purposes totalled 191 made up as follows:—

New Metropolitan sub divisions	145
New Country sub divisions	36
Area Surveys	10
	191

In each instance, the ground water pattern was determined, and where applicable, the particular land treatment required was specified.

As with previous years, requests from other Departments' Local Health Authorities and members of the Public continued to increase, and in addition to the specific proposals examined on behalf of the Town Planning Board, an additional 85 investigations were conducted, made up as follows:—

Local Health Authority, area surveys	13
State Housing Commission	10
State Taxation Department	8
Water Purity Committee	6
Local Government Department	36
General Inquiries	12
	85

19. SEPTIC TANKS AND SEWERAGE SCHEMES

A total of 7 969 applications for the installation of Bacteriolytic Treatment systems were examined and approved.

By comparison, during 1973, 9 979 applications were examined and during 1972, 9 715.

The decline in applications was attributed to the reduced rate of cottage construction which occurred during the year, and also the increasing trend for new sub divisional proposals to be provided with deep sewerage facilities.

During the year further amendments and additions were made to the relevant regulations to allow for altered procedures and the use of newly developed components.

The testing of chemical additives to chemical closets and septic tank disposal systems was continued : New materials and designs for on site disposal systems were examined and a variety of chemical closets were examined and tested.

20. COMMUNITY WASTES

During 1974, the Departmental survey of solid and liquid waste generation was completed and the information collated into a " Report on Community Waste in Perth Metropolitan Region ".

The report was prepared by Departmental officers on behalf of the Technical Advisory Sub Committee of the Metropolitan Refuse Disposal Planning Committee, and following submissions to the Hon. Minister for Health, copies were distributed to affected Local Authorities and Government Departments, and to other various interested organisations and individuals.

Responses to the various conclusions and recommendations contained in the report, particularly the recommendation relating to the forming of a Statutory waste disposal Authority, are currently being examined and are to be considered at a meeting of the Planning Committee convened for early 1975, when future action will be determined.

Other matters relating to Community wastes which continued to receive attention during the year, included the investigation of the suitability of various proposed sites for both solid and liquid waste disposal having regard to possible impact upon underground water reserves, and continued investigation into the nature and extent of production of toxic and hazardous wastes.

21. DETAILS OF SOME OTHER ROUTINE AND SPECIAL INVESTIGATIONS CONDUCTED DURING THE YEAR

1. Investigation of statutory appeals and complaints made to the Commissioner of Public Health—

   57 Appeals and 239 Complaints investigated.

2. Regular supervisory visits to Country Local Health Authorities : 160 visited.
3. Regular supervisory examination of hygiene standards at Perth Airport on behalf of the Department of Civil Aviation.
4. Investigation of hygiene standards at Rottnest Island and commencement of comprehensive water sampling programme to determine presence and extent of sewerage pollution in Thompsons Bay and adjacent waters, with the aim of introducing corrective measures if necessary.
5. Special investigations and introducing of control measures relating to outbreaks of bacillary dysentery, and cases of psittacosis.
6. At the request of the Water Purity Committee, a special investigation was made of the sanitation and hygiene aspects of recreational and other proposed uses of Water Catchment areas, and draft legislation prescribing standards proposed.
7. The introduction of a special survey to determine structural and Public Health Standards of all schools, both Government and private throughout the State : This is a continuing activity.
8. Lecturing of Environmental Health students and other groups both formal and informal, and attendance at various meetings and Committees on behalf of the Commissioner of Public Health.

9. Routine sampling activities included:—

Rivers, Oceans and National Parks (bacteriological)	1 540
Oceans and Lakes (Salmonella)	144
Water (Chemical)	26
Miscellaneous	316
Abattoir Effluent	168
Domestic Water Supplies	29
Public Swimming Pools	216

22. APPRECIATION

My appreciation is again extended to a dedicated and loyal staff who were responsible for the activities in this report.

Appendix A

MEAT INSPECTION FOR YEAR ENDED 31st DECEMBER, 1974

Types and Numbers of Animals Slaughtered		Carcases Condemned										Part Carcases Condemned						Organs Condemned						
		Tuberculosis	Actinomycosis	Emaciation	Piroplasmosis	Pleuro-Pneumonia	Caseous Lymphadenitis	Para-Typhoid	Traumatic and Septic	Other Abnormalities	Total Carcases Condemned	Actinomycosis	Caseous Lymphadenitis	Tuberculosis	Arthritis	Other Abnormalities	Total Part Carcases Condemned	Actinomycosis	Echinococcus Granulosis	C. Ovis	Hydatids	Tuberculosis	Other Abnormalities	Total Organs Condemned
Midland—																								
Cattle and Calves	43 187	94	....	....	....	....	....	....	48	72	214	24	....	....	....	17	41	94	153	....	....	3	4 178	4 428
Sheep and Lambs	279 546	....	....	....	....	....	4 463	....	1 476	4 626	10 565	....	....	....	15	....	15	....	....	....	....	....	124 320	124 320
Pigs	118 357	....	....	....	....	....	....	2	90	462	554	....	....	28	1 236	970	2 234	8	....	....	....	....	23 652	23 660
Robbs Jetty—																								
Cattle and Calves	52 079	4	....	....	....	....	....	....	13	15	32	715	....	....	37	200	952	559	106	....	....	....	6 946	7 611
Sheep and Lambs	425 417	....	....	....	....	....	2 265	1	545	3 542	6 353	....	5 362	....	5 509	190	11 061	....	262	1	....	....	59 351	59 614
Pigs	34 662	....	....	....	....	....	....	2	58	190	250	....	....	....	410	330	740	....	....	....	....	....	10 497	10 497
Watsons—																								
Pigs	143 000	24	....	....	1	1	....	18	201	849	1 094	....	....	....	7 213	5 282	12 495	....	....	....	....	....	25 831	25 831
Country Districts—																								
Cattle and Calves	154 660	9	8	2	....	....	....	....	53	58	130	45	....	....	43	128	216	86	....	....	1	....	655	742
Sheep and Lambs	575 784	....	....	177	....	....	231	....	543	430	1 381	....	134	....	589	139	862	....	....	4 416	278	....	6 998	11 692
Pigs	72 217	....	....	....	....	....	....	2	143	189	334	4	....	....	383	319	706	....	....	32	2	5	7 526	7 565
Total State—																								
Cattle and Calves	249 926	107	8	2	....	....	....	....	114	145	376	784	....	....	80	345	1 209	739	259	....	1	3	11 779	12 781
Sheep and Lambs	1 280 747	....	....	177	....	....	6 959	1	2 564	8 598	18 299	....	5 496	....	6 113	329	11 938	....	262	4 427	278	....	190 669	195 636
Pigs	368 236	24	....	....	1	1	....	26	492	1 690	2 234	4	....	28	9 242	6 901	16 175	8	....	32	2	5	67 506	69 553

Note : Country Abattoirs included—
Albany*, Boulder, Boyup Brook, Bunbury, Busselton, Dardanup/Capel, Esperance, Greenough, Harvey, Kojonup, Manjimup, Merredin, Moora ,Narrogin, Northam, Plantagenet, Wagin, Waroona, Woodanilling.
* Only stock slaughtered, no condemnation figures received.

Appendix B

METROPOLITAN FLY CAMPAIGN 1974/75

PERSONS TRAINED AT THREE SCHOOLS

Mature Aged Persons	15
Students	5

METROPOLITAN

16 Local Authorities employed a total of 45 mature age persons and 6 students as fly control officers.

Previously trained persons who re-applied and where employed:—

Mature Aged Persons	30
Students	1

Claremont—Did not participate.

Peppermint Grove—New participant.

Cockburn—Did not participate previous year.

5 Councils took part in the Autumn campaign.

STATISTICAL SUMMARY OF ANNUAL FLY CAMPAIGN 1974/75

Year	Number of Local Authorities		No. of Vacancies	No. of persons trained	No. of Courses	No. available	No. employed	Previously Trained persons applied	Previously Trained persons employed	Total No. of weeks	No. of Premises inspected	No. of Premises visited	No. of Premises breeding flies	Percentage of Premises inspected breeding flies	No. of Breeding places found
	Metropolitan	Country													
1969/70....	14	1	41	37	4	37	36	18	18	327	40,643	52,688	3,303	8·1	3,481
1970/71....	16	1	35	33	3	33	33	5	5	343	51,121	61,080	4,050	7·9	4,539
1971/72....	16	....	35	31	4	25	25	13	13	440	66,487	75,895	4,477	6·7	4,737
1972/73....	16	....	42	23	2	23	23	19	19	564	75,133	86,051	3,728	5·0	4,066
1973/74....	15	1	41	24	4	24	24	24	24	564	69 787	76 750	4 154	6·0	4 369
1974/75....	16	....	51	20	3	20	20	31	31	625	78 504	89 051	3 545	....	3 818

METROPOLITAN FLY CAMPAIGN 1974–75 (BOTH PHASES) SUMMARY OF RESULTS

Local Authority	No. of Persons Employed.	Total Time of Employment (in weeks).	Number of Premises Visited.	Number of Premises Inspected.	Number of Premises where Breeding Detected.	Number of Breeding Places Found.	Rubbish Bins.	Buried Food Wastes.	Poultry Keeping.	Incinerators.	Mulch.	Compost Heaps.	Blood and Bone.	Animal Manure.	Poultry Manure.	Lawn Clippings.	Other.
City of Perth	15	291	26 300	24 341	1 623	1 844	793	181	32	37	26	148	21	48	94	464	....
City of Stirling	4	38	6 575	4 330	296	324	169	23	18	4	2	10	1	6	7	83	1
City of South Perth	2	20	2 560	2 552	38	43	9	3	3	....	1	5	....	3	....	18	1
City of Fremantle	2	20	3 069	1 943	37	37	2	1	3	....	1	2	....	8	8	12	....
City of Melville	7	77	14 127	13 354	328	328	58	26	4	4	16	51	....	7	5	157	....
City of Subiaco	1	19	4 319	4 164	95	95	24	5	....	....	1	23	....	....	3	34	5
City of Nedlands	4	31	5 982	5 960	59	59	10	6	....	....	....	13	....	....	....	30	....
Town of Canning	2	16	3 903	3 498	163	163	22	2	....	....	9	33	2	2	1	92	....
Town of Cockburn	1	6	1 865	901	68	76	17	16	20	3	1	....	....	5	4	10	....
Town of Mosmans	1	3	531	531	11	11	1	....	....	....	2	5	....	....	....	3	....
Shire of Bassendean	4	36	3 102	2 967	147	151	24	3	5	....	....	19	....	4	....	96	....
Shire of Belmont	2	18	6 881	4 996	144	144	....	....	....	....	....	....	....	....	....	144	....
Shire of Kalamunda	2	12	3 085	2 935	314	316	280	....	3	1	1	7	....	5	9	10	....
Shire of Peppermint Grove	1	3	374	353	8	8	....	....	....	....	....	3	....	1	3	1	....
Shire of Rockingham	2	24	4 445	4 176	196	201	114	3	....	1	....	16	3	10	10	43	1
Shire of Wanneroo	1	11	1 933	1 503	18	18	13	....	....	....	....	1	....	....	4	....	....
	51	625	89 051	78 504	3 545	3 818	1 536	269	88	50	60	336	27	99	148	1 197	8

METROPOLITAN FLY CONTROL PLANNING COMMITTEE—MAY 1975

Report of Fly Control Officers employed and Premises Inspected during Both Phases of 1974/75 Campaign

Local Authorities participating	16
Students employed	6
Mature Age persons employed	45
Premises visited	89 051
Premises inspected	78 504
Premises breeding flies	3 545
Percentage of Premises not inspected	11·9%

Breeding Sites

	%
Rubbish bins	40·2
Buried food wastes	7·0
Poultry keeping	2·3
Incinerators	1·3
Mulch	1·6
Compost heaps	8·8
Blood and bone	0·7
Animal manure	2·6
Poultry manure	3·9
Lawn clippings	31·4
Other	0·2

Comparative Figures of Breeding

	%		%
1961/62	22·3	1968/69	9·0
1962/63	23·5	1969/70	8·1
1963/64	10·0	1970/71	7·9
1964/65	10·0	1971/72	6·7
1965/66	9·4	1972/73	5·0
1966/67	7·9	1973/74	6·0
1967/68	6·7	1974/75	4·5

FLY CAMPAIGN 1974/75—COMPARISON WITH 1973/74—BOTH PHASES

	No. of Premises Inspected		No. of Premises Breeding Flies		Percentage of Premises Breeding Flies	
	1973/74	1974/75	1973/74	1974/75	1973/74	1974/75
City of Perth	19 701	24 341	1 695	1 623	8·6	6·7
City of Stirling	2 652	4 330	169	296	6·4	6·8
City of South Perth	2 552	2 552	26	38	1·0	1·5
City of Fremantle	1 554	1 943	15	37	1·0	1·9
City of Melville	14 812	13 354	393	328	2·7	2·6
City of Subiaco	4 066	4 164	104	95	2·6	2·3
City of Nedlands	6 080	5 960	212	59	3·5	1·0
Town of Canning	1 033	3 498	42	163	4·0	4·7
Town of Cockburn	....	901	....	68	....	7·5
Town of Mosmans	1 348	531	24	11	1·8	2·0
Shire of Bassendean	3 038	2 967	488	147	16·0	5·0
Shire of Belmont	363	4 996	145	144	40·0	2·9
Shire of Kalamunda	3 086	2 935	282	314	9·1	10·7
Shire of Peppermint Grove	....	353	....	8	....	2·3
Shire of Rockingham	4 976	4 176	322	201	6·5	4·8
Shire of Wanneroo	3 358	1 503	33	18	1·0	2·0

Appendix XV

Food & Nutrition Section

J. R. Edinger B.Sc. A.R.A.C.I. Food & Nutrition Officer

1. General

It has been clearly demonstrated throughout the year that there has been an increasing technological involvement not only by possible new contaminants in food itself, but by packaging materials used to contain different varieties of food. This has resulted in special sampling programmes in addition to routine and planned sampling which has placed a heavy burden on the Officers of the Food Section of the Inspection Branch. With increasing research into many aspects of food, it is considered that this pressure will continue to increase and hence, the work-load will become heavier in the future occasioning the need for more staff. My thanks are sincerely tendered to Mr. J. Slattery, Chief Health Surveyor for his personal co-operation and that of his staff.
Good contact has been maintained with the public, local industry, local government and other government departments, supplying information and acting in an advisory capacity where required. Due to the amount of publicity which food is receiving through the media, enquiries from the public are steadily increasing and it may be stated that the advice given from the Department is most appreciated and, in many cases allays fears and doubts concerning the particular food.

Two meetings of the National Therapeutics Goods Committee were attended during the year and the main item discussed was the proposed Draft Standard for the Advertising of Therapeutic Goods. This Draft Standard has been discussed at State level and is still receiving attention and consideration.

Meetings of the National Health and Medical Research Council's Food Standards Committee were attended in July, September and December and new Food Standards were introduced and discussed. Many of the older Standards were amended.

2. Sampling Programmes, Investigations and Allied Work

2.1 *Cockburn Sound Survey*—Mercury content of fish.

Twenty three samples of fish were examined for mercury content. Results were similar to the two preceding years and no sample exceeded the prescribed limit for mercury of 0·5 p.p.m.

2.2 *Fish*—Canned, Frozen, Crustaceans, Molluscs (all imported).

Samples of fish submitted from the officer stationed at Fremantle Wharf totalled 104. Routine examination for mercury content gave an overall average of 0·08 p.p.m. (limit 0·5 p.p.m.).

2.3 *Shark sampling and draft report*—Mercury Content.

Sampling of various species of sharks for estimate of mercury content commenced in 1973 with the co-operation of the Department of Wildlife and Fisheries continued. Towards the latter end of the year a draft preliminary report was conjointly drawn up by officers of the two Departments. Statistical evaluation of the results should be completed early in 1975 and the report forwarded to the Ministers for Health and Fisheries.

2.4 *Oysters*

Over 450 samples were examined for heavy metals such as mercury, zinc, cadmium and in a few cases lead. Bacteriological examinations were also conducted on the oysters. The full account is given in the Chief Health Surveyor's report on food.

2.5 *Crayfish Survey*—Westralian Coast for mercury content.

Samples as supplied by Department of Fisheries numbering 79 in all were examined for mercury content and none exceeded the allowable limit of 0·5 p.p.m.

2.6 *Liquor Inspection*

The Officer-in-Charge of Food Inspection arranged for continuous inspection of premises and sampling of beer and spirits—47 in number. This item is reported in detail in the Chief Health Surveyor's report on food.

2.7 **Special Projects**

2.7.1 *Eggs*

In conjunction with the Egg W.A. Marketing Board 66 samples of eggs were examined for mercury content and the overall average was below the allowable limit of 0·03 p.p.m.
Examination for pesticides was also conducted on 22 composite samples (each of one dozen) with satisfactory results.

2.7.2 *Heavy Metals in Meat*—Cadmium and Zinc.

Twenty one samples of various types of meats were examined for cadmium and zinc. Results were satisfactory.

2.7.3 *Fruit Juices*

Samples totalling 74 were taken during the year and the juice content estimated. Appropriate action was adopted to remedy deficiencies in juice content.

Throughout the year 1 142 samples of food products were taken by officers of the Inspection Branch and submitted to the Government Chemical Laboratories or Public Health Laboratories for examination.

To avoid duplication these are listed in the Chief Health Surveyor's Report on Food.

Of these samples a total of 220 were examined by the Public Health Laboratories as special projects and these are listed separately as appendix 1.

2.7.4 *Market Basket Surveys*—Metals and Pesticides

Four quarterly purchases of various foods were made in conjunction with Australian Department of Health Officers and the National Health and Medical Research Council to estimate heavy metals and pesticides.

3. Food Regulations

Five meetings of the W.A. Food and Drug Advisory Committee were held, at which 21 amendments to the Food and Drug Regulations were approved.

The scale of Fees for the Meat Inspection and Branding of Meat was approved by the Advisory Committee and subsequently gazetted.

In conclusion, my thanks are tendered to Mr. J. F. Slattery, Chief Health Surveyor and Mr. G. Kaiser, Officer-in-Charge of Food Inspection and those other Officers of the Inspection Branch who have so ably assisted in the many sampling projects and investigations carried out over the year.

Appendix 1.

Public Health Laboratories
(Toxicological Section).

Pesticides	Number of Samples
Eggs (Composite Samples)	22
Butter	1
Cheese	1
Lard	1
Dripping	1
Suet	1
Minced Meat	1
Ox Kidney	1
Ox Liver	1
	30
Mercury	
Fish	94
Eggs	66
Chicken Pieces	1
Chicken Food	5
Oyster	1
	167
Heavy Metals—Cadmium and Zinc	
Oyster	1
Meat	21
	22
Miscellaneous Investigations	
Flour	1
Total	220

Appendix XVI

Statistics Branch

Marlene M. Lugg, M.T. Sc.D., M.P.H., F.H.A., F.A.P.H.A., F.R.S.H.
Health Statistician

The Statistics Branch continues towards its goal of offering a comprehensive and co-ordinated health statistics service for Western Australia. It has become the model State centre for health statistics for all of Australia, and has offered advice and assistance to the other States and the Commonwealth.

HOSPITAL MORBIDITY STATISTICS

Request for information from the Hospital Morbidity Statistics system (Hospital Discharge Data System) are continuing to increase beyond all expectations. Thanks must be expressed to all hospital and medical personnel in all public and private hospitals, who have made this system possible by their continued excellent co-operation. Special thanks also go to the Australian Bureau of Statistics for their help in the hospital morbidity system, and other general statistical collections for this Branch.

The State Health Council's report of Metropolitan Hospital needs was tabled in Parliament during this year. The Report, with its 17 statistical appendices, has proved to be a valuable document explaining Western Australian hospital services, and has been used both here and interstate as a basis for further study.

During 1974, total hospital discharges increased by 2·5 per cent from 1973 (237 634 to 243 703). Admissions during which operations were performed increased by 6 per cent, hospitalization for accidental injuries increased by 2·9 per cent, and the remaining non-surgical, non-accident discharges increased only 2 per cent. In all the above, except surgical operation admissions, increases were less than for the corresponding period of 1972–73. Discharge rates per 1 000 population overall decreased very slightly.

HOSPITAL DISCHARGE RATES W.A. 1971–74

Rate per 1 000 Population

Year	Perth	Rural	Total State
1971	169	278	209
1972	180	300	217
1973	182	308	221
1974	185	301	220

Again there has been almost no variation in hospitalization patterns by disease, sex or age groups, compared with the previous years.

As in previous years the teaching hospitals have the longest average stay (9·5 days), the private hospitals have the shortest (6·7 days) and other government and board hospitals are in between at 7·6 days. The overall drop in mean length of stay for all types of hospitals has continued as in previous years, with the State total now being 8 days.

MEAN LENGTH OF STAY BY TYPE OF HOSPITAL W.A. 1971–74

Mean Length of Stay (days)

Year	Teaching	Govt & Board	Private	All hospitals
1971....	10·6	8·1	7·4	8·7
1972....	10·1	7·9	7·0	8·3
1973....	9·6	7·7	7·0	8·1
1974....	9·5	7·6	6·7	8·0

The overall slight decrease in length of stay is reflected in most conditions treated, except for the following, in which length of stay increased very slightly : mental disorders, conditions of the nervous system and sense organs, and symptoms and ill-defined conditions.

As in previous years the overall distribution of patients by type of hospital remains almost identical with a very slight shift from Government and Board hospitals to the Teaching Hospitals.

DISTRIBUTION OF DISCHARGES BY TYPE OF HOSPITAL W.A. 1971–74

Year	Type of Hospital Teaching %	 Govt & Board %	 Private %
1971	29·5	47·7	20·4
1972	29·2	47·4	23·4
1973	29·9	46·9	23·2
1974	30·7	46·1	23·2

Operation cases showed a slightly decreased average length of stay ; 7·3 days compared with 7·5 days in the previous year.

Accidents, poisoning and violence continues to account for 13·6 per cent of all discharges, and 14·0 per cent of total bed days, with 9 deaths per 1 000 separations, a decrease of one from the 1973 rate. As in previous years, accidental injury remains the leading reason for hospital admissions in the male, aged 10-50.

DATA PREPARATION UNIT

This unit as in previous years, continues to process charges and billing lists for the Public Health Laboratory service. Fortunately that work is decreasing as dedicated computers within the laboratories assume this function. Other work for the unit has increased tremendously during this immediate year. *Ad hoc* projects within the health services, such as perinatal death notifications, cancer registration, notifiable diseases, and the new midwives notification of birth form, have greatly increased the work of the data preparation unit. Officers of this unit are currently being trained in the use of the computer terminals which will eventually replace most of the card punch and verifier machinery within the Branch.

CANCER REGISTER

The Cancer Register is now fully functional, and routine requests from hospitals and doctors are able to be answered quickly.

The Health Statistician attended a second national working party on Cancer registration, in Canberra in November, at which it was noted that Western Australia and New South Wales are still the only population based Cancer Registeries in Australia.

As the Western Australalain Cancer Register is important to workers outside the Health Department and receives numerous requests from them, I have repeated the following section of the 1973 Annual Report, which summarises the Cancer Register.

" The W.A. Central Cancer Register is a State-wide, population based epidemiological register covering the following : (1) all in-patients in all hospitals (2) radiotherapy clinics (3) Registrar General death notifications and (4) Pathologists. The latter (pathologists) section is not as yet developed as fully as possible. Types of Cancer recorded include all malignancies except skin (but does include melanoma).

The majority of data collected is demographic, (age, sex, occupation, place of birth, etc.) plus condition for which treated, other conditions present, operations performed, primary treatment, histology, etc. Further hospital and radiotherapy visits are monitored. It is intended that out-patient visits and routine follow-up of all patients at some interval (such as 3 or 5 years) will be added in the next year.

Computer analysis, frequencies, cross tabulations are now available for individual hospitals, and for the total Central Cancer Register. The procedures employed plus Bureau of Census for routine census data allows calculation of rates for a variety of demographic variables for the total State or sub-divisions thereof, down to the smallest census collectors district.

Analysis of treatment or detailed analysis of any type or sub-class of disease can be undertaken by special groups. For example, the Leukemia and Allied Disorders group has been obtaining detail only possible through direct interview. The newer Bone Tumour Registry has a pro-forma of 12 pages of data obtained from doctors and hospital records ; copies of x-rays, pathology slides, and medical photographs.

Thus the function of the Central Cancer Registry is a routine epidemiological monitoring system, which can be expanded in depth whenever suitable projects, staff and finance are available. (Costs involved are considerable, and tend to be underestimated). For these special interest sub-groups, the Central Cancer Register serves as a " patient locator ", furnishing all data available to the sub-group ; and then assisting with research design, forms development, statistical assistance, and computer processing if needed. "

Special mention must be made of the work done in the re-organization of the W.A. Cancer Register by Miss Paula Waterman, during her two years in the Statistics Branch. Miss Waterman has now returned to the United States, and we wish her well, as she begins further graduate study.

NOTIFIABLE DISEASES

The Statistical Branch continues to process notifiable diseases notifications, and to assist the Epidemiology Branch and the Venereal Disease Control Branch in their routine and special data collections.

OCCUPATIONAL HEALTH

The Statistics Branch has continued co-operation with the Occupational Health Branch, with survey design, sample selection, questionnaires, and analysis of results for various occupational health projects. As this portion of our work is now increasing rapidly we hope the appointment of a research officer in the next year will assist this Branch.

AD HOC PROJECTS AND SURVEYS

National Hospitals and Health Services Commission Survey

At the end of 1974, the National Hospitals and Health Services Commission attempted a survey of hospital facilities in all States. The problems were many and State officers assisted the National Commission in the design of the data collection system, and the mechanics of carrying it out. Western Australia was the only State which had a viable health statistics centre operating within its Department of Public Health, and therefore was the only State able to carry out the survey by itself. Results were of course forwarded to the National Hospitals and Health Services Commission after checking at state level. This was truly another first for Western Australia, as the survey was carried out quickly, efficiently, by State officers at a State level, and only the results forwarded on to the Hospitals and Health Services Commission. In all other States, the Commission dealt directly with hospitals within each State.

Asbestos Project

A joint project undertaken during the year between the Statistics Branch and the University Unit of Epidemiology, involves the gathering of data about all employees at the now closed Wittenoom Gorge Asbestos mine. This will prove to be a long term project as the incubation periods for various diseases to which asbestos miners are more susceptible, are long. Cross checking with the State's Asbestosis Register, the Cancer Register for mesothelioma deaths, and hospital statistics for other lung conditions has only begun, and will be a long term project covering the next ten to twenty years.

Busselton Health Centre

The Statistics Branch, the University of Western Australia's Medical Epidemiology Unit, and the Doctors of the Busselton area instituted a pre-health centre—Busselton Health Care Survey—on the 1st July, 1974. This survey, which lasted six months, was to give base-line data in the usage of medical care services in the Busselton community prior to the establishment of the health centre, which will occur early in 1975. Data collected is comprehensive, including hospital, surgery, home visiting, x-ray, laboratory, and prescription data. It is hoped that this data will be useful in identifying the characteristics of data collection which will make for efficient evaluation of health centres once established. This survey will be repeated in the last six months of 1975 for comparison purposes. In addition, the data from this survey will be used by an Honours Degree student in Economics at the University of Western Australia, who will attempt to estimate the total cost of health services to the Busselton community for a specified period of time.

OTHER ITEMS OF INTEREST

The Statistics Branch continues to offer practical training and experience for fifth year medical students as part of their social and preventive medicine course, and employs medical students during the summer holidays for special Public Health projects. During 1974 the Health Statistician also lectured on survey methods to W.A.I.T. students, Community Health nursing students, and other interested groups.

As in previous years numerous requests for information were received from Government, University and private sources. The Health Statistician continues to serve on the State Health Council's Computer Co-ordinating Committee, and is a member of the National Health and Medical Research Council's Medical Statistics Committee and the Cancer Registries' working party. During this year the Statistics Branch has truly received National recognition as a State centre for health statistics. The Health Statistician in charge has served as a special consultant on health statistics in Australia to the National Hospitals and Health Services Commission, and a report on that project should be forthcoming in the next year.

In closing I would like to thank the staff of the Statistics Branch for their continued loyal support and untiring efforts in serving the State of Western Australia.

Appendix XVII

DISCHARGES FROM W.A. HOSPITALS 1974
SUMMARY BY AGE GROUPS AND LENGTH OF STAY (DAYS)

Description	AGE GROUPS					
	0–4	5–14	15–44	45–64	65 and over*	Total
All Discharges—						
Number	28 128	24 918	115 514	44 111	31 032	243 703
Percentage of Total	11·5	10·2	47·3	18·1	12·7	100·0
Length of Stay	163 504	108 068	700 558	436 810	534 786	1 943 726
Percentage of Total	8·4	5·4	36·0	22·4	27·5	100·0
Average Length of Stay	5·8	4·3	6·0	9·9	17·2	8·0
Operation Cases Only—						
Number	6 202	12 783	61 968	22 752	11 403	115 108
Percentage of Total	5·4	11·1	53·8	19·8	9·9	100·0
Length of Stay	26 552	51 126	367 675	214 827	176 000	836 180
Percentage of Total	3·2	6·1	44·0	25·7	21·0	100·0
Average Length of Stay	4·3	3·9	5·9	9·4	15·4	7·3
External Cause (Injury)—						
Number	3 755	4 917	16 188	5 043	3 324	33 227
Percentage of Total	11·3	14·7	48·7	15·1	10·0	100·0
Length of Stay	17 574	22 910	107 024	59 604	64 634	271 746
Percentage of Total	6·5	8·4	39·4	21·9	23·8	100·0
Average Length of Stay	4·7	4·7	6·6	11·8	19·4	8·2

*Includes ages not stated

AGE SPECIFIC HOSPITAL DISCHARGES.
WESTERN AUSTRALIA 1938-1974.*

Year	AGE GROUPS							
	Under 15		15–64		65+		Total	
	No. of Discharges	Percentage of Total	No. of Discharges	Percentage of Total	No. of Discharges	Percentage of Total	No. of Discharges	Percentage of Total
1968	34 215	27·57	72 379	58·33	17 495	14·10	124 089	100
1969	39 926	27·65	83 262	57·66	21 212	14·69	144 400	100
1970	41 404	27·69	86 420	57·79	21 725	14·53	149 549	100
1971	49 399	23·37	135 516	64·12	26 434	12·51	211 394	100
1972	54 184	23·60	146 507	63·81	28 902	12·59	229 593	100
1973	55 087	23·18	152 036	63·98	30 511	12·84	237 634	100
1974	53 046	21·77	159 625	65·50	31 032	12·73	243 703	100

*Private Hospitals not included prior to 1971

W.A. HOSPITALS

Patients Discharged During 1974

I.C.D. Categories	Disease Groups	Number of Cases		Number Days in Hospital		Average Number Days in Hospital		Per cent of Total Bed Days		Outcome			
		Male	Female	Male	Female	Male	Female	Male	Female	Discharged	Trans-ferred	Died	Deaths Per 1,000 Separations
Sec. I													
000–009	Intestinal Infectious Diseases	2 689	2 627	19 328	17 121	7·2	6·5	1·0	0·9	5 200	99	17	3
010–019	Tuberculosis	201	52	7 849	1 967	39·1	37·8	0·4	0·1	220	25	8	31
020–027	Zoonotic Bacterial Diseases	3	3	30	36	10·0	12·0	....	....	6	....	....	....
030–039	Other Bacterial Diseases	170	183	2 855	2 436	16·8	13·3	0·2	0·1	302	18	33	93
040–046	Poliomyelitis and Other Enterovirus Diseases of Central Nervous System	70	35	568	186	8·1	5·3	0·0	0·0	102	3	....	....
050–057	Viral Diseases accompanied by Exanthem	301	337	2 671	2 416	8·9	7·2	0·1	0·1	618	17	3	4
060–068	Arthropod-borne Viral Diseases	11	13	183	98	16·6	7·5	0·0	....	24	....	....	....
070–079	Other Viral Diseases	1 084	1 281	4 421	5 609	4·1	4·4	0·2	0·3	2 339	22	4	1
080–089	Rickettsioses and Other Arthropod-borne Diseases	27	10	133	52	4·9	5·2	0·0	....	36	1	....	....
090–099	Syphilis and Other Venereal Diseases	126	295	682	1 076	5·4	3·7	0·0	0·1	418	3	....	....
100–104	Other Spirochaetal Diseases	8	8	61	42	7·6	5·3	....	....	14	2	....	....
110–117	Mycoses	78	76	726	855	9·3	11·2	0·0	0·0	153	1	....	....
120–129	Helminthiases	22	16	231	150	10·5	9·4	0·0	0·0	38	....	....	....
130–136	Other Infective and Parasitic Diseases	179	154	1 916	1 474	10·7	9·6	0·1	0·1	332	1	....	....
Sec. II													
140–149	Malignant Neoplasm of Buccal Cavity and Pharynx	131	28	2 201	329	16·8	11·8	0·1	0·0	138	8	13	81
150–159	Malignant Neoplasm of Digestive Organs and Peritoneum	490	359	10 072	8 838	20·6	24·6	0·5	0·3	634	31	184	216
160–163	Malignant Neoplasm of Respiratory System	643	85	12 870	1 358	20·0	16·0	0·5	0·1	505	22	201	276
170–174	Malignant Neoplasm of Bone, Connective Tissue, Skin and Breast	807	841	6 505	10 273	8·1	12·2	0·3	0·5	1 588	21	29	23
180–189	Malignant Neoplasm of Genito-Urinary Organs	670	511	8 216	7 082	12·3	13·9	0·4	0·4	1 067	42	72	60
190–199	Malignant Neoplasm of Other and Unspecified Sites	549	575	10 456	12 239	19·0	21·3	0·5	0·6	727	80	317	282
200–209	Neoplasms of Lymphatic and Haematopoietic Tissue	258	275	2 984	3 598	11·6	13·1	0·2	0·2	437	14	82	153
210–228	Benign Neoplasms	597	1 595	3 786	10 113	6·3	6·3	0·6	0·5	2 167	23	2	....
230–239	Neoplasms of Unspecified Nature	144	185	1 381	3 210	9·6	17·4	0·1	0·2	306	10	13	39
Sec. III													
240–246	Diseases of Thyroid Gland	50	302	666	3 188	13·3	10·6	0·0	0·2	350	1	1	2
250–258	Diseases of Other Endocrine Glands	638	834	8 283	12 562	13·0	15·1	0·4	0·7	1 375	61	36	24
260–269	Avitaminoses and Other Nutritional Deficiency	295	299	3 865	3 584	13·0	12·0	0·2	0·2	554	37	3	5
270–279	Other Metabolic Diseases	208	354	2 330	4 175	11·2	11·8	0·1	0·2	545	12	5	8
Sec. IV													
280–289	Diseases of Blood and Blood Forming Organs	660	636	4 890	5 686	7·4	8·9	0·3	0·3	1 243	36	17	13

Sec. V													
290–299	Psychoses	440	551	10 551	13 017	24·0	23·6	0·5	0·1	849	132	10	10
300–309	Neuroses, Personality Disorders and Other Non-Psychotic Mental Disorders	2 196	2 124	25 321	24 880	11·5	11·7	1·3	1·3	4 144	161	15	3
310–315	Mental Retardation	8	11	62	115	7·8	10·4	....	0·0	17	2	....	....
Sec. VI													
320–324	Inflammatory Diseases of the Central Nervous System	116	103	3 879	1 475	33·4	14·3	0·2	0·1	182	21	16	73
330–333	Hereditary and Familial Diseases of Nervous System	27	16	427	269	15·8	16·8	0·0	0·0	35	5	3	69
340–349	Other Diseases of Central Nervous System	968	971	14 608	17 875	15·1	18·4	0·8	0·9	1 793	114	32	16
350–358	Diseases of Nerves and Peripheral Ganglia	541	733	4 064	5 926	7·5	8·1	0·2	0·3	1 234	4	....	....
360–369	Inflammatory Diseases of the Eye	520	407	3 167	2 146	6·1	5·3	0·2	0·1	905	22	....	....
370–379	Other Diseases and Conditions of the Eye	1 764	1 706	11 479	10 731	6·5	6·3	0·6	0·6	4 323	42	5	1
380–389	Diseases of the Ear and Mastoid Process	1 906	1 652	8 552	6 962	4·5	4·2	0·4	0·4	3 591	55	2	....
Sec. VII													
390–392	Active Rheumatic Fever	117	120	1 473	1 594	12·6	13·3	0·1	0·1	221	14	2	8
393–398	Chronic Rheumatic Heart Disease	56	99	983	1 295	17·6	13·1	0·1	0·1	142	5	8	51
400–404	Hypertensive Disease	592	914	6 013	10 258	10·2	11·2	0·3	0·5	1 432	48	26	17
410–414	Ischaemic Heart Disease	2 338	1 256	30 017	15 754	12·8	12·5	1·5	0·8	3 047	105	442	122
420–429	Other Forms of Heart Disease	1 437	1 056	21 994	16 606	15·3	15·7	1·1	0·9	2 126	105	262	105
430–438	Cerebrovascular Disease	1 066	947	27 321	29 635	25·6	31·3	1·4	1·5	1 405	210	398	197
440–448	Diseases of Arteries, Arterioles and Capillaries	562	279	13 106	7 309	23·3	26·2	0·7	0·4	697	62	82	97
450–458	Other Diseases of Circulatory System	1 672	2 539	16 919	26 634	10·1	10·5	0·8	1·4	4 133	26	52	12
Sec. VIII													
460–466	Acute Respiratory Infection (except Influenza)	3 094	2 521	13 748	12 201	4·4	4·8	0·7	0·7	5 555	49	11	1
470–474	Influenza	442	556	2 466	3 557	5·6	6·4	0·1	0·2	987	10	1	1
480–486	Pneumonia	2 151	1 489	22 064	14 103	10·3	9·5	1·1	0·7	3 322	126	192	52
90–493	Bronchitis, Emphysema and Asthma	4 228	3 253	34 406	21 304	8·1	6·6	1·8	1·1	7 308	105	68	9
00–508	Other Diseases of Upper Respiratory Tract	4 040	3 943	13 243	13 416	3·3	3·4	0·7	0·7	7 934	16	3	....
10–519	Other Diseases of Respiratory System	1 823	1 450	17 542	12 878	9·6	8·9	0·9	0·7	3 114	97	62	18
Sec. IX													
520–529	Diseases of Oral Cavity, Salivary Glands and Jaws	2 200	2 956	4 690	6 282	2·1	2·1	0·2	0·3	5 141	14	1	....
530–537	Diseases of Oesophagus, Stomach and Duodenum	1 860	991	17 515	9 188	9·4	9·3	0·9	0·5	2 756	63	32	11
540–543	Appendicitis	2 014	2 513	12 068	15 579	6·0	6·2	0·6	0·8	4 459	68	....	....
550–553	Hernia of Abdominal Cavity	2 442	762	19 213	6 860	7·9	9·0	1·0	0·4	3 168	33	3	....
560–569	Other Diseases of Intestine and Peritoneum	1 340	1 471	12 160	13 549	9·1	9·2	0·6	0·7	2 655	101	55	19
570–577	Diseases of Liver, Gall Bladder and Pancreas	1 168	2 337	14 747	26 668	12·6	11·4	0·8	1·4	3 346	92	67	19
Sec. X													
580–584	Nephritis and Nephrosis	258	393	2 655	2 007	10·3	5·1	0·1	0·1	604	21	26	39
590–599	Other Diseases of Urinary System	2 680	3 492	13 669	16 439	5·1	4·7	0·7	0·9	6 047	86	39	6
600–607	Diseases of Male Genital Organs	2 555	....	22 742	....	8·9	....	1·2	....	2 507	38	10	3
610–616	Diseases of Breast, Ovary, Fallopian Tube and Parametrium	95	3 759	406	22 360	4·3	6·0	0·0	1·2	3 829	22	3	....
620–629	Diseases of Uterus and Other Female Genital Organs	....	9 910	....	52 616	....	5·3	....	2·7	9 859	45	6	....

W.A. HOSPITALS—*continued*

Patients Discharged During 1974—continued

I.C.D. Categories	Disease Groups	Number of Cases		Number Days in Hospital		Average Number Days in Hospital		Per cent of Total Bed Days		Outcome			
		Male	Female	Male	Female	Male	Female	Male	Female	Discharged	Trans-ferred	Died	Deaths Per 1,000 Separations
Sec. XI													
630–634	Complications of Pregnancy	....	3 545	....	13 193	....	3·7	....	0·7	3 394	151	....	....
635–639	Urinary Infections and Toxaemias of Pregnancy and Puerperium	....	1 244	....	6 421	....	5·2	....	0·3	1 200	44	....	....
640–645	Abortion	....	3 563	....	10 709	....	3·0	....	0·6	3 546	17	....	....
650–662	Delivery	....	20 233	....	179 131	....	8·8	....	9·2	20 079	153	1	....
670–678	Complications of the Puerperium	....	254	....	1 060	....	4·2	....	0·5	248	5	1	3
Sec. XII													
680–686	Infections of Skin and Subcutaneous Tissue	1 825	1 155	12 615	8 839	6·9	7·6	0·7	0·5	2 945	34	1	....
690–698	Other Inflammatory Conditions of Skin and Subcutaneous Tissue	397	323	3 744	2 456	9·4	7·6	0·2	0·1	711	9	....	....
700–709	Other Diseases of Skin and Subcutaneous Tissue	1 835	1 652	11 539	10 338	6·3	6·3	0·6	0·5	3 455	26	6	3
Sec. XIII													
710–718	Arthritis and Rheumatism except Rheumatic Fever	1 156	1 270	19 789	26 536	17·1	20·9	1·0	1·4	2 348	67	11	4
720–729	Osteomyelitis and Other Diseases of Bone and Joint	3 653	2 583	31 629	26 545	8·7	10·3	1·6	1·4	6 088	140	8	1
730–738	Other Diseases of Musculoskeletal System	896	1 208	6 061	10 826	6·8	9·0	0·3	0·6	2 088	15	1	....
Sec. XIV													
740–759	Congenital Anomalies	1 203	932	11 962	8 018	9·9	8·6	0·6	0·4	1 995	79	61	28
Sec. XV													
760–779	Certain Causes of Perinatal Morbidity and Mortality	481	449	5 579	5 469	11·6	12·2	0·3	0·3	824	74	32	34
Sec. XVI													
780–789	Symptoms Referable to Systems or Organs	7 110	7 236	36 007	37 513	5·1	5·2	1·9	1·9	13 766	474	106	7
790–796	Ill-Defined Diseases	1 092	2 133	23 519	45 623	21·5	21·4	1·2	2·4	2 955	159	111	34
Sec. XVII													
800–809	Fracture of Skull, Spine and Trunk	1 659	596	17 305	7 698	10·4	12·9	0·9	0·4	2 075	139	41	18
810–819	Fracture of Upper Limb	1 907	1 381	8 197	6 031	4·3	4·4	0·4	0·3	3 198	88	2	....
820–829	Fracture of Lower Limb	1 811	1 148	35 732	28 443	19·7	24·8	1·8	1·5	2 653	239	67	22
830–839	Dislocation without Fracture	531	187	3 128	1 089	5·9	5·8	0·2	0·1	699	18	1	1
840–848	Sprains and Strains of Joints and Adjacent Muscles	589	310	3 698	1 807	6·3	5·8	0·2	0·1	892	7	....	....
850–854	Intracranial Injury (excluding those with Skull Fracture)	2 841	1 203	11 492	3 930	4·0	3·3	0·6	0·2	3 896	116	32	7
860–869	Internal Injury of Chest, Abdomen and Pelvis	305	129	3 484	1 412	11·4	10·9	0·2	0·1	384	25	25	57
870–879	Laceration and Open Wound of Head, Neck and Trunk	1 139	533	5 039	2 191	4·4	4·1	0·3	0·1	1 632	38	2	1
880–887	Laceration and Open Wound of Upper Limb	1 452	384	5 598	1 209	3·9	3·1	0·3	0·1	1 802	31	3	1
890–897	Laceration and Open Wound of Lower Limb	784	376	5 039	3 208	6·4	8·5	0·3	0·2	1 145	15	....	....

Sec. XVII *–continued*													
900–907	Laceration and Open Wound of Multiple Location	236	110	1 225	636	5·2	5·8	0·1	0·0	324	22	....	....
910–918	Superficial Injury	336	159	1 312	682	3·9	4·3	0·1	0·0	487	8	....	....
920–929	Contusion and Crushing with Intact Skin Surface	801	408	4 076	2 247	5·1	5·5	0·2	0·1	1 176	33	....	....
930–939	Effects of Foreign Body Entering through Orifice	275	238	751	509	2·7	2·1	0·0	0·0	499	13	1	1
940–949	Burn	1 092	439	12 029	4 887	11·0	11·1	0·6	0·3	1 472	46	13	8
950–959	Injury to Nerves and Spinal Cord	108	40	488	615	4·5	15·4	0·0	0·0	141	7	....	....
960–979	Adverse Effect of Medicinal Agents	828	1 625	3 379	6 955	4·1	4·3	0·2	0·4	2 330	115	8	3
980–989	Toxic Effect of Substances Chiefly Non-Medicinal as to Source	804	412	2 010	929	2·5	2·3	0·1	0·1	1 198	15	3	2
990–999	Other Adverse Effects	2 453	1 496	16 056	12 075	6·5	8·1	0·8	0·6	3 830	97	22	5
Sec. Y													
Y00–Y09	Examination and Investigation of Specific Systems without reported diagnosis	1 806	4 087	5 712	9 980	3·2	2·4	0·3	0·5	5 831	61	1	....
Y10–Y19	Other Examinations Without Reported Diagnosis	7	8	42	53	6·0	6·6	....	....	14	1	....	....
Y20–Y29	Medical and Surgical Procedures without Reported Diagnosis	100	70	271	225	2·7	3·2	....	0·0	168	2	....	....
Y30-Y39	Medical and Surgical Aftercare without Current Complaint or Sickness	1 556	1 158	8 426	6 944	5·4	6·0	0·4	0·4	2 680	30	4	1
Y40–Y49	Persons Undergoing Preventive Measures	1 618	3 336	2 148	9 749	1·3	2·9	0·1	0·5	4 943	10	1	....
Y50–Y59	Elective Surgery	444	538	1 028	3 952	23·4	7·3	0·1	0·2	981	1	....	....
Y60–Y69	Maternal and Well-baby Care	70	953	654	6 440	9·3	6·8	0·0	0·3	919	104	....	....
Y70–Y79	Other Persons without Current Complaint or Sickness	105	220	570	1 145	5·4	5·2	0·0	0·1	308	17	....	....
Y80–Y89	Healthy Live Born Infants according to Type of Birth	....	....	....	....	....	....	....	....	....	....	....	....
	Total	105 130	138 573	864 766	1 078 960	8·2	7·8	44·4	56·0	234 664	5 490	3 549	14
	Grand Total, Male and Female	243 703		1 943 726		8·0		100·0					

W.A. HOSPITALS, 1974

Age Distribution of Patients Discharged by Sex and Principal Condition

I.C.D. Categories	Principal Condition	Age Groups 0–4	5–9	10–14	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	70+	Not Stated	Total All Ages
	Males																	
000–136	Infective and Parasitic	2 459	448	310	200	259	243	141	123	112	97	99	98	80	89	199	12	4 969
140–239	Neoplasms	90	68	49	90	69	88	77	105	195	256	340	426	580	639	1 216	1	4 289
240–279	Endocrine, Nutritional, Metabolic	268	34	37	26	53	29	28	47	48	75	90	90	82	92	187	5	1 191
280–289	Blood and Blood Forming Organs	120	117	46	40	28	23	12	18	13	14	23	26	21	38	120	1	660
290–315	Mental Disorders	94	23	25	97	175	171	170	198	237	336	336	266	183	142	183	8	2 644
320–389	Nervous System and Sense Organs	1 196	731	316	202	255	244	256	263	270	277	349	290	328	306	543	16	5 842
390–458	Circulatory System	28	54	50	57	102	186	185	312	371	628	761	841	1 067	1 063	2 126	9	7 840
460–519	Respiratory System	5 027	2 629	1 056	635	632	548	402	350	316	395	456	526	645	695	1 431	35	15 778
520–577	Digestive System	841	806	789	789	875	817	686	562	595	713	723	710	662	549	899	8	11 024
580–629	Genito-Urinary System	469	218	164	173	200	487	193	333	549	228	419	327	415	499	907	7	5 588
680–709	Skin and Subcutaneous Tissue	496	315	272	364	400	360	228	207	194	210	221	176	200	149	252	13	4 057
710–738	Musculoskeletal System	108	150	182	322	467	513	507	483	485	476	455	420	405	316	409	7	5 705
740–759	Congenital Anomalies	532	270	169	58	40	24	21	12	16	9	8	9	14	11	10	....	1 203
760–779	Perinatal Morbidity	478	1	....	....	....	....	....	....	....	....	....	....	....	....	....	2	481
780–796	Symptoms and Ill-defined Conditions	1 272	590	489	355	396	438	385	407	437	519	514	410	509	506	962	13	8 202
N800–N999	Accidents, Poisoning & Violence	2 166	1 482	1 589	2 872	2 803	1 946	1 284	1 138	916	902	735	525	537	355	653	54	19 951
Y00–Y89	Supplementary Classifications	711	178	120	275	355	557	677	623	488	397	322	252	243	218	285	5	5 706
	Male Total	16 355	8 114	5 663	6 555	7 109	6 674	5 252	5 181	5 236	5 532	5 851	5 392	5 971	5 667	10 382	196	105130
	Females																	
000–136	Infective and Parasitic	2 012	436	340	438	424	279	184	134	110	98	115	90	86	95	230	19	5 090
140–239	Neoplasms	81	54	87	176	222	267	254	275	292	352	393	379	397	379	844	2	4 454
240–279	Endocrine, Nutritional, Metabolic	267	26	34	53	76	111	98	132	115	99	100	124	166	120	261	7	1 789
280–289	Blood and Blood Forming Organs	54	49	43	33	21	26	26	29	35	43	33	28	38	28	149	1	636
290–315	Mental Disorders	82	14	56	184	269	285	267	270	199	233	196	150	148	121	207	5	2 686
320–389	Nervous System and Sense Organs	974	587	281	218	230	316	299	320	284	283	303	240	298	287	653	15	5 588
390–458	Circulatory System	17	42	46	97	155	306	370	446	497	538	618	573	644	756	2 096	9	7 210
460–519	Respiratory System	3 375	2 166	942	1 001	782	669	530	405	396	416	406	369	451	379	883	42	13 212
520–577	Digestive System	604	756	858	1 325	1 257	917	706	550	599	587	575	490	480	435	876	15	11 030
580–629	Genito-Urinary System	118	146	213	1 108	2 335	2 716	2 513	2 052	1 827	1 780	1 133	467	354	280	488	24	17 554
630–678	Pregnancy and Childbirth	....	....	42	3 915	10 392	9 201	3 613	1 277	334	36	2	....	....	....	....	27	28 839
680–709	Skin and Subcutaneous Tissue	385	223	239	287	263	230	147	151	147	182	148	143	144	129	293	19	3 130
710–738	Musculoskeletal System	83	88	167	310	303	320	362	372	337	418	471	399	402	340	680	9	5 061
740–759	Congenital Anomalies	344	112	88	82	71	48	47	34	25	19	11	12	14	10	15	....	932
760–779	Perinatal Morbidity	449	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	449
780–796	Symptoms and Ill-defined Conditions	1 059	562	425	714	915	761	657	536	469	485	445	429	388	397	1 107	20	9 339
N800–N999	Accidents, Poisoning & Violence	1 495	943	816	1 178	922	745	631	579	486	451	463	410	404	380	1 227	44	11 174
Y00–Y89	Supplementary Classifications	374	147	113	703	1 860	2 203	1 647	1 081	642	481	337	214	184	140	222	22	10 370
	Female Total	11 773	6 351	4 790	11 822	20 497	19 400	12 351	8 643	6 794	6 501	5 749	4 517	4 598	4 276	10 231	280	138573
	Grand Total Male and Female	28 128	14 465	10 453	18 377	27 606	26 074	17 603	13 824	12 030	12 033	11 600	9 909	10 569	9 943	20 613	476	243703

Age Distribution of Aborigines Discharged by Sex and Principal Condition

I.C.D. Categories	Principal Condition Males	AGE GROUPS																Total All Ages
		0–4	5–9	10–14	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	70+	Not Stated	
000–136	Infective and Parasitic....	970	74	37	19	19	18	13	15	13	7	4	6	6	12	18	9	1 240
140–239	Neoplasms	1	1	1	....	5	1	1	....	....	3	2	3	1	2	6	1	28
240–279	Endocrine, Nutritional, Metabolic	84	3	8	....	4	3	5	7	5	9	15	7	4	5	12	5	176
280–289	Blood and Blood Forming Organs	27	11	3	1	2	....	....	2	....	1	....	....	2	1	1	1	52
290–315	Mental Disorders	5	3	1	4	10	11	9	22	20	17	7	6	5	3	6	4	133
320–389	Nervous System and Sense Organs	303	96	43	21	12	14	14	23	18	14	11	9	9	11	26	14	638
390–458	Circulatory System	1	8	3	7	5	1	9	14	16	13	18	14	21	24	22	3	179
460–519	Respiratory System	1 174	170	78	27	28	19	41	37	34	38	30	39	49	35	35	31	1 865
520–577	Digestive System	60	26	12	10	3	8	22	12	18	9	6	7	6	5	6	2	212
580–629	Genito-Urinary System	41	12	9	2	5	9	3	3	7	2	5	8	4	8	12	4	134
680–709	Skin and Subcutaneous Tissue	156	72	40	24	27	19	15	20	15	18	9	6	8	9	10	8	453
710–738	Musculoskeletal System	10	8	7	7	3	8	7	6	5	17	3	7	4	4	3	5	104
740–759	Congenital Anomalies	20	6	5	....	....	....	....	....	....	....	....	....	....	....	....	....	31
760–779	Perinatal Morbidity	27	1	....	....	....	....	....	....	....	....	....	....	....	....	....	2	30
780–796	Symptoms amd Ill-defined Conditions	216	97	45	26	20	36	28	28	32	29	22	20	24	23	53	10	709
N800–N999	Accidents, Poisoning, Violence	183	127	69	147	148	123	103	97	88	77	39	33	29	13	10	31	1 317
Y00–Y89	Supplementary Classifications	57	6	5	4	6	8	5	3	2	3	2	....	4	3	6	3	117
	Male Total	3 335	721	366	299	297	278	275	289	273	257	173	165	176	158	226	133	7 421
	Females																	
000–136	Infective and Parasitic....	770	75	46	51	37	25	13	15	12	5	10	8	8	5	11	17	1 108
140–239	Neoplasms	3	....	2	2	1	1	3	10	7	5	5	3	12	2	5	1	62
240–279	Endocrine, Nutritional, Metabolic	49	1	3	1	3	2	7	14	15	12	13	19	19	9	14	6	187
280–289	Blood and Blood Forming Organs	7	10	4	7	1	2	2	4	1	1	1	1	2	....	2	1	46
290–315	Mental Disorders	3	4	3	12	11	10	10	16	3	6	7	....	1	1	1	3	91
320–389	Nervous System and Sense Organs	229	99	40	35	21	30	14	22	12	6	4	4	10	8	11	11	556
390–458	Circulatory System	2	5	9	21	10	10	14	24	27	11	18	17	22	13	26	5	234
460–519	Respiratory System	805	147	64	55	36	45	32	55	50	59	29	32	42	21	24	37	1 533
520–577	Digestive System	65	26	24	19	32	21	29	22	13	11	17	2	9	5	6	9	310
580–629	Genito-Urinary System	21	16	22	77	76	66	46	36	25	24	8	5	6	3	10	16	457
630–678	Pregnancy and Childbirth	....	....	10	427	453	220	95	70	16	3	....	....	....	....	....	22	1 316
680–709	Skin and Subcutaneous Tissue	134	72	39	24	18	22	20	17	18	11	11	2	11	5	9	19	432
710–738	Musculoskeletal System	13	9	7	6	6	6	8	19	8	5	1	3	4	6	1	5	107
740–759	Congenital Anomalies	19	11	6	....	1	....	1	2	2	....	....	....	1	....	....	....	43
760–779	Perinatal Morbidity	18	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	18
780–796	Symptoms and Ill-defined Conditions	204	86	35	66	54	54	37	46	37	25	20	21	14	15	34	14	762
N800–N999	Accidents, Poisoning, Violence	144	113	47	110	129	133	89	85	75	55	44	20	18	11	20	37	1 130
Y00–Y89	Supplementary Classifications	52	15	9	99	134	82	68	23	14	5	5	....	8	2	....	18	534
	Female Total	2 538	689	370	1 012	1 023	729	488	480	335	244	193	137	187	103	174	221	8 923
	Grand Total Male and Female	5 873	1 410	706	1 311	1 320	1 007	763	769	608	501	366	302	363	234	400	354	16 347

W.A. HOSPITALS, 1974

Age Distribution of Non-Aborigines Discharged by Sex and Principal Condition

I.C.D. Categories	Principal Condition Males	Age Groups																Total All Ages
		0–4	5–9	10–14	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	70+	Not Stated	
000–136	Infective and Parasitic....	1 489	374	273	181	240	225	128	108	99	90	95	92	74	77	181	3	3 729
140–239	Neoplasms	89	67	48	90	64	87	76	105	195	253	338	423	579	637	1 210	....	4 261
240–279	Endocrine, Nutritional, Metabolic	184	31	29	26	49	26	23	40	43	66	75	83	78	87	175	....	1 015
280–289	Blood and Blood Forming Organs	93	106	43	39	26	23	12	16	13	13	23	26	19	37	119	....	608
290–315	Mental Disorders	89	20	24	93	165	160	161	176	217	319	329	260	178	139	177	4	2 511
320–389	Nervous System and Sense Organs	893	635	273	181	243	230	242	240	252	263	338	281	319	295	517	2	5 204
390–458	Circulatory System	27	46	47	50	97	185	176	298	355	615	743	827	1 046	1 039	2 104	6	7 661
460–519	Respiratory System	3 853	2 459	978	608	604	529	361	313	282	357	426	487	596	660	1 396	4	13 913
520–577	Digestive System	781	780	777	779	872	809	664	550	577	704	717	703	656	544	893	6	10 812
580–629	Genito-Urinary System	428	206	155	171	195	478	190	330	542	226	414	319	411	491	895	3	5 454
680–709	Skin and Subcutaneous Tissue	340	243	232	340	373	341	213	187	179	192	212	170	192	140	242	5	3 601
710–738	Musculoskeletal System	98	142	175	315	464	505	500	477	480	459	452	413	401	312	403	2	5 601
740–759	Congenital Anomalies	512	264	164	58	40	24	21	12	16	9	8	9	14	11	10	10	1 172
760–779	Perinatal Morbidity	451	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	451
780–795	Symptoms and Ill-defined Conditions	1 056	493	444	329	376	402	357	369	405	490	492	390	485	483	909	3	7 493
N800–N999	Accidents, Poisoning, Violence	1 983	1 355	1 520	2 725	2 655	1 823	1 181	1 041	828	825	696	492	508	342	643	23	18 634
Y00–Y89	Supplementary Classifications....	654	172	115	271	349	549	672	620	486	395	320	252	239	215	279	2	5 589
	Male Total	13 020	7 393	5 297	6 256	6 812	6 396	4 977	4 892	4 963	5 275	5 678	5 227	5 795	5 509	10 156	63	97 709
	Females																	
000–136	Infective and Parasitic....	1 242	361	294	387	387	254	171	119	98	93	105	82	78	90	219	2	3 982
140–239	Neoplasms	78	54	85	174	221	266	251	265	285	347	388	376	385	377	839	1	4 392
240–279	Endocrine, Nutritional, Metabolic	218	25	31	52	73	109	91	118	100	87	87	105	147	111	247	1	1 602
280–289	Blood and Blood Forming Organs	47	39	39	26	20	24	24	25	34	42	32	27	36	28	147	....	590
290–315	Mental Disorders	79	10	53	172	258	275	257	254	196	227	189	150	147	120	206	2	2 595
320–389	Nervous System and Sense Organs	745	488	241	183	209	286	285	298	272	277	299	236	288	279	642	4	5 032
390–458	Circulatory System	15	37	37	76	145	296	356	422	470	527	600	556	622	743	2 070	4	6 976
460–519	Respiratory System	2 570	2 019	878	946	746	624	498	350	346	357	377	337	409	358	859	5	11 679
520–577	Digestive System	539	730	834	1 306	1 225	896	677	528	586	576	558	488	471	430	870	6	10 720
580–629	Genito-Urinary System	97	130	191	1 031	2 259	2 650	2 467	2 016	1 802	1 756	1 125	462	348	277	478	8	17 097
630–678	Pregnancy and Childbirth	....	....	32	3 488	9 939	8 981	3 518	1 207	318	33	2	....	....	....	....	5	27 523
680–709	Skin and Subcutaneous Tissue	251	151	200	263	245	208	127	134	129	171	137	141	133	124	284	....	2 698
710–738	Musculoskeletal System	70	79	160	304	297	314	354	353	329	413	470	393	398	334	679	4	4 954
740–759	Congenital Anomalies	325	101	82	82	70	48	46	32	23	19	11	12	13	10	15	....	889
760–779	Perinatal Morbidity	431	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	431
780–796	Symptoms and Ill-defined Conditions	855	476	390	648	861	707	620	490	432	460	425	408	374	382	1 073	6	8 607
N800–N999	Accidents, Poisoning, Violence	1 351	830	769	1 068	793	612	542	494	411	396	419	390	386	369	1 207	7	10 044
Y00–Y89	Supplementary Classifications....	322	132	104	604	1 726	2 121	1 579	1 058	628	476	332	214	176	138	222	4	9 836
	Female Total	9 235	5 662	4 420	10 810	19 474	18 671	11 863	8 163	6 459	6 257	5 556	4 380	4 411	4 170	10 057	59	129 647
	Grand Total, Male and Female....	22 255	13 055	9 747	17 066	26 286	25 067	16 840	13 555	11 422	11 532	11 234	9 607	10 206	9 679	20 213	122	227 356

W.A. HOSPITALS, 1974

Patients Discharged by Race and Principal Condition

I.C.D. Categories	Principal Condition Groups	Discharges					Days in Hospital					Average Number of Days in Hospital			% of Total Bed Days		
		Aboriginal		Non-Aboriginal		Total	Aboriginal		Non-Aboriginal		Total	Abo-riginal	Non-Abo-riginal	Total	Abo-riginal	Non-Abo-riginal	Total
		Number	% for Group	Number	% for Group		Number	% for Group	Number	% for Group							
000–136	Infective and Parasitic	2 348	0·2	7 711	0·8	10 059	26 099	0·4	49 073	0·6	75 172	11·1	6·4	7·5	1·34	2·52	3·86
140–239	Neoplasms	90	....	8 653	1·0	8 743	1 299	....	114 212	1·0	115 511	14·4	13·2	13·2	0·07	5·89	5·94
240–279	Endocrine, Nutritional, Metabolic	363	0·1	2 617	0·9	2 980	6 680	0·2	31 973	0·8	38 653	18·4	12·2	13·0	0·34	1·64	1·99
280–289	Blood and Blood Forming Organs....	98	0·1	1 198	0·9	1 296	1 002	0·1	9 578	0·9	10 580	10·2	8·0	8·2	0·05	0·49	0·54
290–315	Mental Disorders	224	....	5 106	1·0	5 330	1 963	....	71 983	1·0	73 946	8·8	14·1	13·9	0·10	3·70	7·80
320–389	Nervous System and Sense Organs	1 194	0·1	10 236	0·9	11 430	12 797	0·1	78 763	0·9	91 560	10·7	7·7	8·0	0·66	4·05	4·71
390–458	Circulatory System	413	....	14 637	1·0	15 050	7 442	....	219 469	1·0	226 911	18·0	15·0	15·1	0·38	11·29	11·67
460–519	Respiratory System	3 398	0·1	25 592	0·9	28 990	28 782	0·2	152 147	0·8	180 929	8·5	5·9	6·2	1·48	7·83	9·31
520–577	Digestive System	522	....	21 532	1·0	22 054	4 067	....	54 452	1·0	158 519	7·8	7·2	7·2	0·21	7·95	8·16
580–629	Genito-Urinary System	591	....	22 551	1·0	23 142	4 843	....	128 051	1·0	132 894	8·2	5·7	5·7	0·25	6·59	6·84
630–678	Pregnancy and Childbirth	1 316	0·1	27 523	1·0	28 839	11 085	0·1	199 429	0·9	210 514	8·4	7·2	7·3	0·57	10·26	10·83
680–709	Skin and Subcutaneous Tissue	888	0·1	6 299	0·9	7 187	7 388	0·2	42 143	0·8	49 531	8·3	6·7	6·9	0·38	2·17	2·55
710–738	Musculoskeletal System	211	....	10 555	1·0	10 766	2 660	....	118 726	1·0	121 386	12·6	11·2	11·3	0·14	6·11	6·25
740–759	Congenital Anomalies	74	....	2 061	1·0	2 135	2 645	0·1	17 335	0·9	19 980	35·7	8·4	9·4	0·14	0·89	1·03
760–779	Perinatal Morbidity	48	0·1	882	1·0	930	1 222	0·1	9 826	0·9	11 048	25·5	11·1	11·9	·06	0·51	0·57
780–796	Symptoms and Illdefined Conditions	1 471	0·1	16 100	0·9	17 571	14 532	0·1	128 130	0·9	142 662	9·9	8·0	8·1	0·75	6·59	7·34
N800–N999	Accidents, Poisoning, Violence	2 447	0·1	28 678	0·9	31 125	19 194	0·1	207 397	0·9	226 591	7·8	7·7	7·3	0·99	10·67	11·66
Y00–Y89	Supplementary Classifications	651	....	15 425	1·0	16 076	5 291	0·1	52 048	0·9	57 339	8·1	3·4	3·6	0·27	2·68	2·95
	Total	16 347	0·1	227 356	0·9	243 703	158 991	0·1	1 784 735	0·9	1 943 726	9·7	7·8	8·0	8·18	91·82	100·00

W.A. HOSPITALS 1974

Patients Discharged by Principal Condition and Type of Hospital

I.C.D. Categories	Principal Condition Groups	Discharges							Days in Hospital							Average Number of Days in Hospital				Percentage of Total Bed Days			
		Teaching		Private		Other Govt. and Board		All Hospitals	Teaching		Private		Other Govt. and Board		All Hospitals	Teaching	Private	Other Govt. and Board	All Hospitals	Teaching	Private	Other Govt. and Board	All Hospitals
		No.	% for Group	No.	% for Group	No.	% for Group		No.	% for Group	No.	% for Group	No.	% for Group									
000–136	Infective and Parasitic	2 687	26·71	975	9·69	6 397	63·59	10 059	29 608	39·39	4 760	6·33	40 804	54·28	75 172	11·2	4·9	6·4	7·5	2·00	0·20	1·67	3·87
140–239	Neoplasms	4 629	52·95	1 958	22·40	2 156	24·66	8 743	65 527	56·73	17 374	15·04	32 610	28·23	115 511	14·2	8·9	15·1	13·2	3·37	0·89	1·68	5·94
240–279	Endocrine, Nutritional. Metabolic	1 029	34·53	539	18·09	1 412	47·38	2 980	13 102	33·90	5 980	15·47	19 571	50·63	653	12·7	11·1	13·9	13·0	0·67	0·31	1·01	1·99
280–289	Blood and Blood Forming Organs	523	40·35	234	18·06	539	41·59	1 296	4 563	43·13	1 599	15·11	4 418	41·76	10 580	8·7	6·8	8·2	8·2	0·23	0·08	0·23	0·54
290–315	Mental Disorders	1 925	36·12	1 238	23·23	2 167	40·66	5 330	27 624	37·36	18 302	24·75	28 020	37·89	73 946	14·4	14·8	12·9	13·9	1·42	0·94	1·44	3·80
320–389	Nervous System and Sense Organs	4 315	37·75	3 505	30·66	3 610	31·58	11 430	42 434	46·35	15 181	16·58	33 945	37·07	91 560	9·8	4·3	9·4	8·0	2·18	0·78	1·75	4·71
390–458	Circulatory System	6 111	40·60	2 575	17·11	6 364	42·29	15 050	92 897	40·94	32 537	14·34	101 477	44·72	226 911	15·2	12·6	16·0	15·1	4·78	1·67	5·22	11·67
460–519	Respiratory System	7 311	25·22	5 936	20·48	15 743	54·30	28 990	46 421	25·66	28 111	15·54	106 397	58·81	180 929	6·4	4·7	6·8	6·2	2·39	1·45	5·47	9·31
520–577	Digestive System	5 854	26·54	6 613	29·99	9 587	43·47	22 054	54 001	34·07	42 705	26·94	61 813	38·99	158 519	9·2	6·5	6·6	7·2	2·78	2·20	3·18	8·16
580–629	Genito-Urinary System	7 486	32·35	6 801	29·39	8 855	38·26	23 142	39 438	29·68	43 621	32·82	49 835	37·50	132 894	5·3	6·4	5·6	5·7	2·03	2·24	2·57	6·84
630–678	Pregnancy and Childbirth	5 964	20·68	7 904	27·41	14 971	51·91	28 839	41 147	19·55	62 879	29·87	106 488	50·58	210 514	6·9	8·0	7·1	7·3	2·12	3·23	5·48	10·83
680–709	Skin and Subcutaneous Tissue	1 186	16·50	2 020	28·11	3 981	55·39	7 187	12 514	25·26	10 229	20·65	26 788	54·08	49 531	10·6	5·1	6·7	6·9	0·64	0·53	1·38	2·55
710–738	Musculoskeletal System	3 193	29·66	3 676	34·14	3 897	36·20	10 766	53 181	43·81	30 159	24·85	38 046	31·34	121 386	16·7	8·2	9·8	11·3	2·74	1·55	1·96	6·25
740–759	Congenital Anomalies	1 419	66·46	433	20·28	283	13·26	2 135	16 190	81·03	1 902	9·52	1 888	9·45	19 980	11·4	4·4	6·7	9·4	0·83	0·10	0·10	1·03
760–779	Perinatal Morbidity	208	22·37	429	46·13	293	31·51	930	2 639	23·89	4 643	42·03	3 766	34·09	11 048	12·7	10·8	12·9	12·0	0·14	0·24	0·19	0·57
780–796	Symptoms and Ill-defined Conditions	4 076	23·20	2 742	15·61	10 753	61·20	17 571	22 572	15·82	24 618	17·26	95 472	66·92	142 662	5·5	9·0	8·9	8·1	1·16	1·27	4·91	7·34
N800–N999	Accidents, Poisoning, Violence	13 932	44·76	2 537	8·15	14 656	47·09	31 125	129 587	57·19	17 373	7·67	79 631	35·14	226 591	9·3	6·8	5·4	7·3	6·67	0·89	4·10	11·66
Y00–Y89	Supplementary Classifications....	2 949	18·34	6 500	40·43	6 627	41·22	16 076	14 305	24·95	19 977	34·84	23 057	40·21	57 339	4·8	3·1	3·5	3·6	0·74	1·03	1·18	2·95
	Total	74 797	30·69	56 615	23·23	112 291	46·08	243 703	707 750	36·41	381 950	19·65	854 026	43·94	1943726	9·5	6·7	7·6	8·0	36·41	19·65	43·94	100·00

W.A. HOSPITALS, 1974

Patients Discharged by Principal Condition and Type of Hospital

I.C.D. Categories	Principal Condition Groups	Discharges														
		Metropolitan								Country						
		Teaching		Government		Private		Total		Govt. and Board		Private		Total		State Total
		Number	% for Group	Number	% for Group	Number	% for Group	Number	% for Group	Number	% for Group	Number	% for Group	Number	% for Group	
000–136	Infective and Parasitic	2 687	26·71	705	7·01	635	6·31	4 027	40·03	5 692	56·59	340	3·38	6 032	59·97	10 059
140–239	Neoplasms	4 629	52·95	550	6·29	1 853	21·19	7 032	80·43	1 606	18·37	105	1·20	1 711	19·57	8 743
240–279	Endocrine, Nutritional, Metabolic	1 029	34·53	211	7·08	457	15·34	1 697	56·95	1 201	40·30	82	2·75	1 283	43·05	2 980
280–289	Blood and Blood Forming Organs	523	40·35	95	7·33	203	15·66	821	63·35	444	34·26	31	2·39	475	36·65	1 296
290–315	Mental Disorders	1 925	36·12	168	3·15	1 142	21·43	3 235	60·69	1 999	37·50	96	1·80	2 095	39·31	5 330
320–389	Nervous System and Sense Organs	4 315	37·75	432	3·78	3 325	29·09	8 072	70·62	3 178	27·80	180	1·57	3 358	29·38	11 430
390–458	Circulatory System	6 111	40·60	1 083	7·20	2 226	14·79	9 420	62·59	5 281	35·09	349	2·32	5 630	37·41	15 050
460–519	Respiratory System	7 311	25·22	2 349	8·10	4 991	17·22	14 651	50·54	13 394	46·20	945	3·26	14 339	49·46	28 990
520–577	Digestive System	5 854	26·54	2 778	12·60	5 569	25·25	14 201	64·39	6 809	30·87	1 044	4·73	7 853	35·61	22 054
580–629	Genito-Urinary System	7 486	32·35	3 523	15·22	6 291	27·18	17 300	74·76	5 332	23·04	510	2·20	5 842	25·24	23 142
630–678	Pregnancy and Childbirth	5 964	20·68	7 130	24·72	7 334	25·43	20 428	70·83	7 841	27·19	570	1·98	8 411	29·17	28 839
680–709	Skin and Subcutaneous Tissue	1 186	16·50	744	10·35	1 809	25·17	3 739	52·02	3 237	45·04	211	2·94	3 448	47·98	7 187
710–738	Musculoskeletal System	3 193	29·66	831	7·72	3 501	32·52	7 525	69·90	3 066	28·48	175	1·63	3 241	30·10	10 766
740–759	Congenital Anomalies	1 419	66·46	128	6·00	411	19·25	1 958	91·71	155	7·26	22	1·03	177	8·29	2 135
760–779	Perinatal Morbidity	208	22·37	136	14·62	414	44·52	758	81·51	157	16·88	15	1·61	172	18·49	930
780–796	Symptoms and Illdefined Conditions	4 076	23·20	1 037	5·90	2 100	11·95	7 213	41·05	9 716	55·30	642	3·65	10 358	58·95	17 571
N800–N999	Accidents, Poisoning, Violence	13 932	44·76	1 333	4·28	1 982	6·37	17 247	55·41	13 323	42·80	555	1·78	13 878	44·59	31 125
Y00–Y89	Supplementary Classifications	2 949	18·34	3 172	19·73	6 152	38·27	12 273	76·34	3 455	21·49	348	2·16	3 803	23·66	16 076
	Total	74 797	30·69	26 405	10·83	50 395	20·68	151 597	62·21	85 886	35·24	6 220	2·55	92 106	37·79	243 703

W.A. HOSPITALS

Operation Cases Discharged During 1974

Code of Surgical Procedures	Operation Group	Number of Cases		Number Days in Hospital		Average Number Days in Hospital		Per cent. of Operation Bed Days		Outcome			
		Male	Female	Male	Female	Male	Female	Male	Female	Dis-charged	Trans-ferred	Died	Deaths per 1,000 Separations
Sec. I													
001–019	Skull, Brain and Cerebral Meninges	241	123	8 848	4 283	36·7	34·8	1·1	0·5	284	39	41	112
020–029	Spine and Spinal Cord	1 058	720	13 177	10 953	12·4	15·2	1·6	1·3	1 696	68	14	7
030–035	Cranial Nerves	48	44	303	66	6·3	1·5	0·0	0·0	88	3	1	10
036–039	Autonomic Nervous System (Sympathetic and Parasympathetic)	161	88	3 415	1 843	21·2	21·4	0·4	0·2	238	9	2	8
040–049	Peripheral Nerves	422	559	1 720	2 354	4·0	4·2	0·2	0·3	976	3	2	2
Sec. II													
061–063	Pituitary	13	17	341	321	26·2	18·8	0·0	0·0	27	3	....	....
065–069	Adrenal	2	9	37	189	18·5	21·0	0·0	0·0	11	....	....	....
071–076	Thyroid and Parathyroid	22	202	196	1 730	8·9	8·5	0·0	0·2	222	2	....	....
077–079	Thymus and Carotid Body	1	3	37	51	37·0	17·0	0·0	0·0	4	....	....	....
080–089	Surgery of Neck	298	230	4 257	2 273	14·2	9·8	0·5	0·3	484	26	18	34
Sec. III													
100–109	Orbit and Globe	83	35	822	399	9·9	11·4	0·1	0·0	116	2	....	....
110–115	Eye Muscles of Globe	319	344	1 180	1 248	3·7	3·6	0·1	0·1	661	2	....	....
117–129	Eyelids	360	377	1 754	1 439	4·9	3·8	0·2	0·2	734	3	....	....
132–139	Conjunctiva	423	256	1 318	978	3·1	3·8	0·2	0·1	677	2	....	....
140–149	Cornea	104	49	902	614	8·7	12·5	0·1	0·1	152	1	....	....
150–159	Iris and Ciliary Body	69	71	889	849	12·9	12·0	0·1	0·1	137	3	....	....
160–169	Sclera, Choroid, Retina and Vitreous	146	89	1 423	808	9·7	9·0	0·2	0·1	234	1	....	....
170–179	Lens	369	431	4 981	5 295	13·5	12·2	0·6	0·6	783	12	5	6
180–189	Lacrimal Apparatus	159	192	261	412	1·6	2·1	0·0	0·0	351	....	....	....
Sec. IV													
190–209	Ear	1 475	1 108	5 156	3 949	3·5	3·6	0·6	0·5	2 543	36	4	1
210–224	Nose	1 782	1 193	6 250	5 076	3·5	4·3	0·7	0·6	2 974	1	....	....
225–229	Accessory Air Sinuses and other Parts of Face	147	89	602	451	4·1	5·0	0·1	0·1	235	1	....	....
230–239	Naso-pharynx	2 585	3 084	7 732	9 451	3·0	3·0	0·9	1·1	5 657	11	1	....
240–249	Larynx and Trachea	393	169	4 669	1 476	11·9	8·7	0·6	0·2	529	15	18	32
Sec. V													
250–259	Teeth and Jaws	1 974	2 620	4 951	5 504	2·5	2·1	0·6	0·7	4 581	12	1	....
260–267	Tongue and Mouth	169	124	1 337	636	7·9	5·1	0·2	0·1	290	2	1	3
270–273	Salivary Glands (Parotid, Sublingual, Submandibular Glands)	83	78	566	530	6·8	6·8	0·1	0·1	161	....	....	....
280–283	Pharynx	9	10	53	62	5·9	6·2	0·0	0·0	18	....	....	52
290–299	Oesophagus	293	277	2 540	2 125	8·7	7·7	0·3	0·3	544	9	17	29

Sec. VI													
300–309	Heart	299	207	3 413	2 577	11·4	12·4	0·4	0·3	442	40	24	47
320–329	Intra Thoracic Vessels	37	30	738	495	19·9	16·5	0·1	0·1	59	5	3	44
330–339	Thoracic Cage	192	117	3 670	1 817	19·1	15·5	0·4	0·2	290	1	18	58
340–349	Lung and Bronchus	333	102	5 944	1 543	17·8	15·1	0·7	0·2	413	6	16	36
Sec. VII													
380–389	Breast	98	1 997	451	13 200	4·6	6·6	0·1	1·6	2 086	9	....	....
Sec. VIII													
400–409	Abdominal Wall	237	1 243	4 790	9 547	20·2	7·7	0·6	1·1	1 391	30	59	39
410–419	Hernia	2 252	626	18 336	6 039	8·1	9·6	2·2	0·7	2 857	16	5	1
420–439	Stomach	1 012	583	11 578	5 323	11·4	9·1	1·4	0·6	1 549	19	27	16
440–445	Appendix	1 814	2 301	11 614	15 205	6·4	6·6	1·4	1·8	4 072	42	1	....
446	Other Diverticulae	5	4	86	41	17·2	10·2	0·0	0·0	9	....	....	....
450–469	Small Intestine-Colon	568	617	8 453	9 807	14·9	15·9	1·0	1·2	1 125	20	40	33
470–479	Rectum	183	114	3 090	2 137	16·9	18·7	0·4	0·3	284	1	12	40
480–499	Anus	1 335	949	10 576	7 302	7·9	7·7	1·3	0·9	2 275	7	2	....
500–509	Liver	82	68	1 408	933	17·2	13·7	0·2	0·1	141	6	3	20
510–519	Bile Ducts	18	39	440	846	24·0	21·7	0·1	0·1	55	1	1	17
520–529	Gall Bladder	423	1 363	6 343	18 669	15·0	13·7	0·8	2·2	1 751	16	19	10
530–539	Pancreas	15	11	365	269	24·3	24·4	0·0	0·0	24	2	....	....
540–549	Spleen and Abdominal Venous System	58	39	1 290	1 073	22·2	27·5	0·2	0·1	80	4	13	....
550–559	Abdominal Structures, N.E.C.	93	24	2 058	435	22·1	18·1	0·2	0·1	94	7	16	136
Sec. IX													
560–579	Kidney	271	263	3 968	3 667	14·6	13·9	0·5	0·4	523	8	3	5
580–589	Ureter	318	248	2 764	1 976	8·7	8·0	0·3	0·2	560	5	1	1
600–619	Urinary Bladder	2 146	1 340	10 801	6 263	5·0	4·7	1·3	0·7	3 437	36	13	3
620–629	Urethra	507	141	3 203	1 241	6·3	8·8	0·4	0·1	638	4	6	9
630–637	Prostate	957	....	18 771	....	19·6	....	2·2	....	922	14	21	21
639	Seminal Vesicles	....	....	....	....	....	....	....	....	....	....	....	....
640–669	Testis, Epididymis and Scrotum	3 536	....	10 421	....	2·9	....	1·2	....	3 531	5	....	....
Sec. X													
671–679	Ovary	....	468	....	4 934	....	10·5	....	0·6	462	4	2	4
681–689	Oviduct (Fallopian Tube)	....	4 992	....	26 225	....	5·2	....	3·1	4 976	14	2	....
690–709	Uterus (Hysterectomy)	....	11 711	....	52 907	....	4·5	....	6·3	11 674	30	7	....
710–729	Vagina	....	659	....	7 547	....	11·4	....	0·9	655	4	....	....
730–739	Introitus, Vulva, Labia and Perineum	....	545	....	2 111	....	3·8	....	0·3	545	....	....	....
Sec. XI													
740–750	Ante-natal Obstetric Operations	....	2 298	....	9 174	....	4·0	....	1·1	2 291	7	....	....
751–769	Delivery Obstetric Operations	....	4 462	....	45 377	....	10·2	....	5·4	4 441	21	....	....
770–779	Post-Natal or Post-Abortion Obstetric Operations	.	1 808		7 423	...	4·1	....	0·9	1 807	1	....	....

Operation Cases Discharged During 1973—continued

Code of Surgical Procedures	Operation Group	Number of Cases		Number Days in Hospital		Average Number Days in Hospital		Per cent. of Operation Bed Days		Outcome			
		Male	Female	Male	Female	Male	Female	Male	Female	Dis-charged	Trans-ferred	Died	Deaths per 1,000 Separations
Sec. XII													
780–788	Treatment of Fractures	2 524	1 643	30 212	21 485	12·0	13·0	3·6	2·6	4 030	92	45	10
790–799	Bone	669	684	9 960	10 201	14·9	14·9	1·2	1·2	1 319	27	7	5
800–822	Joints	2 735	2 173	25 599	28 768	9·4	13·2	3·1	3·4	4 846	44	18	3
825–826	Capsule and Ligaments of Joints	105	66	756	332	7·2	5·0	0·1	0·0	170	1	....	....
827–828	Bursae	92	42	469	285	5·1	6·8	0·1	0·0	134	....	....	....
830–839	Muscles	63	67	550	711	8·7	10·6	0·1	0·1	127	2	1	7
840–852	Tendon	847	645	4 036	3 020	4·8	4·7	0·5	0·4	1 477	15	....	....
854–859	Fascia	157	56	849	517	5·4	9·2	0·1	0·1	212	1	....	....
860–879	Amputations and Other Operations on Limbs	380	145	7 709	5 134	20·3	35·4	0·9	0·6	481	19	25	47
Sec. XIII													
880–889	Arteries	292	207	3 345	2 044	11·5	9·9	0·4	0·2	476	13	10	20
890–898	Veins	381	1 377	3 771	12 726	9·9	9·2	0·5	1·5	1 749	7	2	1
900–909	Lymphatics	99	79	1 099	823	11·1	10·4	0·1	0·1	176	....	2	11
Sec. XIV													
910–929	Skin and Subcutaneous Tissue	5 544	4 266	30 869	22 048	5·6	5·2	3·7	2·6	9 729	65	16	1
930–939	Plastic Operations	924	676	9 501	6 972	10·3	10·3	1·1	0·8	1 589	9	2	1
Sec. XV													
940–950	Injection for General Action	1 645	2 093	5 089	7 061	3·1	3·4	0·6	0·8	3 652	32	54	14
952–959	Operations with Site Unspecified	8	11	41	140	5·1	12·7	0·0	0·0	18	....	1	52
960–969	Non-operative Procedures	444	425	2 733	2 873	6·2	6·8	0·3	0·3	855	10	4	4
970–979	Anaesthetic Procedures	120	327	341	1 191	2·8	3·6	0·0	0·1	444	3	....	....
980–999	Diagnostic Radiographic Techniques	536	604	8 138	9 026	15·4	14·9	1·0	1·1	1 025	60	55	48
	Total	47 562	67 546	369 355	466 825	7·8	6·9	44·3	55·3				
	Grand Total Male and Female	115 108		836 180		7·3		100·0		113 375	1 051	682	59

W.A. HOSPITALS, 1974

Age Distribution of Operation Cases by Sex and Operation

Code of Surgical Procedures	Operation Group	Five Year Age Groups																Total All Ages
	Males	0–4	5–9	10–14	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	70+	Not Stated	
001–049	Nervous System	38	25	25	65	115	172	163	198	205	204	183	169	159	77	131	1	1 930
061–089	Endocrine System	30	15	9	25	22	22	20	23	35	22	36	24	31	13	9	....	336
100–189	Eye	321	130	69	85	119	84	88	78	96	103	139	119	161	168	266	6	2 032
190–249	Ear, Nose and Throat	775	1 764	659	495	507	423	293	233	198	206	217	148	166	134	162	2	6 382
250–299	Upper Alimentary Tract	248	410	181	239	297	252	147	96	118	107	94	98	92	59	90	....	2 528
300–349	Thorax	72	12	11	35	23	26	12	31	36	92	76	109	121	75	130	....	861
380–389	Breast	2	1	14	17	7	6	3	9	6	2	6	6	5	2	12	....	98
400–559	Abdomen	514	345	522	530	533	566	506	501	515	677	634	550	539	469	688	6	8 095
560–669	Urinary and Male Genital Organs	831	291	203	160	259	567	701	565	513	389	382	424	560	671	1 215	4	7 735
780–879	Orthopaedic	219	422	539	899	969	784	576	523	466	469	395	338	320	256	385	12	7 572
880–909	Peripheral Circulation	8	7	9	23	33	44	54	52	52	94	94	85	72	62	81	2	772
910–939	Skin and Subcutaneous Tissue	566	533	530	741	721	565	378	337	329	310	336	289	257	211	360	5	6 468
940–999	Other Surgical Procedures	222	115	56	113	142	353	88	237	459	126	276	129	103	116	214	4	2 753
	Male Total, All Operations	3 846	4 070	2 827	3 427	3 747	3 864	3 029	2 883	3 028	2 801	2 868	2 488	2 586	2 313	3 743	42	47 562
	Females																	
001–049	Nervous System	29	7	13	57	66	93	100	179	162	194	175	110	100	84	104	1	1 534
061–089	Endocrine System	37	14	13	28	28	42	43	42	42	44	35	29	25	23	16	....	461
100–189	Eye	298	129	70	48	57	83	70	71	77	109	104	89	124	139	373	3	1 844
190–249	Ear, Nose and Throat	618	1 530	671	691	469	377	274	199	163	131	131	105	107	82	92	3	5 643
250–299	Upper Alimentary Tract	233	400	305	429	466	293	172	111	107	113	121	102	96	49	111	1	3 109
300–349	Thorax	58	32	9	29	38	22	16	23	27	27	38	29	30	10	68	....	456
380–389	Breast	3	2	9	114	196	295	286	210	231	248	119	80	62	47	93	2	1 997
400–559	Abdomen	197	261	477	888	907	831	642	527	522	515	476	400	381	358	593	6	7 981
560–669	Urinary and Female Genital Organs	23	52	43	80	161	153	151	143	119	141	149	182	160	156	278	1	1 992
671–739	Female Genital Tract	16	20	26	889	2 834	3 898	3 423	2 514	1 738	1 326	799	308	206	158	212	8	18 375
740–779	Obstetric	....	....	27	1 482	2 787	2 563	1 106	459	129	12	1	....	....	....	....	2	8 568
780–879	Orthopaedic	203	324	347	412	326	300	336	284	251	331	406	424	392	348	833	4	5 521
880–909	Peripheral Circulation	5	7	10	25	56	163	222	234	223	205	167	124	88	72	62	....	1 663
910–939	Skin and Subcutaneous Tissue	465	441	467	524	453	371	270	274	241	275	239	190	212	180	336	4	4 942
940–999	Other Surgical Procedures	171	57	123	146	287	173	249	235	403	519	392	172	140	118	273	2	3 460
	Female Total, All Operations	2 356	3 276	2 610	5 842	9 131	9 657	7 420	5 505	4 435	4 190	3 352	2 344	2 123	1 824	3 444	37	67 546
	Grand Total, Male and Female	6 202	7 346	5 437	9 269	12 878	13 521	10 449	8 388	7 463	6 991	6 220	2 832	4 709	4 137	7 187	79	115 108

W.A. HOSPITALS, 1974

Patients Discharged by Operation Group and Type of Hospital

Code of Surgical Procedures	Operation Groups	Discharges							Days in Hospital							Average Number of Days in Hospital				Per cent. of Total Bed Days			
		Teaching		Private		Other Govt. and Board		All Hospitals	Teaching		Private		Other Govt. and Board		All Hospitals	Teaching	Private	Other Govt. and Board	All Hospitals	Teaching	Private	Other Govt. and Board	All Hospitals
		No.	% for Group	No.	% for Group	No.	% for Group		No.	% for Group	No.	% for Group	No.	% for Group									
001–049	Nervous System	1 945	56·15	1 099	31·73	420	12·12	3 464	34 652	73·79	8 185	17·43	4 125	8·78	46 962	17·8	7·4	9·8	13·6	4·14	0·98	0·49	5·61
061–089	Endocrine System	523	65·62	188	23·59	86	10·79	797	7 438	78·86	1 451	15·38	543	5·76	9 432	14·2	7·7	6·3	11·8	0·89	0·17	0·07	1·13
100–189	Eye	1 684	43·46	1 738	44·84	454	11·71	3 876	15 605	61·02	7 108	27·80	2 859	11·18	25 572	9·3	4·1	6·3	6·6	1·87	0·85	0·34	3·06
190–249	Ear, Nose and Throat	3 101	25·79	6 160	51·23	2 764	22·99	12 025	15 907	35·50	18 664	41·65	10 241	22·85	44 812	5·1	3·0	3·7	3·7	1·90	2·23	1·23	5·36
250–299	Upper Alimentary Tract	1 135	20·13	2 084	36·97	2 418	42·90	5 637	9 674	52·85	4 139	22·61	4 491	24·54	18 304	8·5	2·0	1·9	3·2	1·16	0·49	0·54	2·19
300–349	Thorax	1 236	93·85	14	1·06	67	5·09	1 317	18 547	91·83	105	0·52	1 545	7·65	20 197	15·0	7·5	23·1	15·3	2·22	0·01	0·19	2·42
380–389	Breast	365	17·39	1 217	58·09	513	24·49	2 095	3 595	26·34	7 281	53·34	2 775	20·33	13 651	9·8	6·0	5·4	6·5	0·43	0·87	0·33	1·63
400–559	Abdomen	6 028	37·49	5 252	32·67	4 796	29·83	16 076	70 937	44·88	44 790	28·34	42 326	26·78	158 053	11·8	8·5	8·8	9·8	8·48	5·36	5·06	18·90
560–669	Urinary and Male Genital Organs	3 408	35·09	3 597	36·98	2 722	27·98	9 727	32 535	51·88	15 315	24·28	15 225	24·14	63 075	8·5	4·3	5·6	6·5	3·89	1·83	1·82	7·54
671–739	Female Genital Tract	3 177	17·28	6 650	36·19	8 548	46·52	18 375	22 069	23·55	34 700	37·02	36 955	39·43	93 724	6·9	5·2	4·3	5·1	2·64	4·15	4·42	11·21
740–779	Obstetric....	3 420	40·11	2 987	34·86	2 161	25·22	8 568	25 202	40·67	24 272	39·16	12 500	20·17	61 974	7·4	8·1	5·8	7·2	3·01	2·90	1·50	7·41
780–879	Orthopaedic	6 119	46·71	4 026	30·75	2 948	22·52	13 093	97 100	64·48	27 641	18·35	25 852	17·17	150 593	15·9	6·9	8·8	11·5	11·61	3·31	3·09	18·01
880–909	Peripheral Circulation	832	34·17	1 003	41·19	600	24·64	2 435	9 487	39·85	8 659	36·37	5 662	23·78	23 808	11·4	8·6	9·4	9·8	1·13	1·04	0·68	2·85
910–939	Skin and Subcutaneous Tissue	3 781	33·13	3 720	32·60	3 909	34·26	11 410	32 975	47·52	17 766	25·60	18 649	26·88	69 390	8·7	4·8	4·8	6·1	3·94	2·23	2·24	8·30
940–999	Other Surgical Procedures	4 999	80·49	683	10·99	531	8·55	6 213	30 483	83·21	4 286	11·70	1 864	5·09	36 632	6·1	6·3	3·5	5·9	3·65	0·51	0·22	4·38
	Total, All Operations	41 753	36·27	40 418	35·11	32 937	28·61	115 108	426 206	50·97	224 362	26·83	185 612	22·20	836 180	10·2	5·6	5·6	7·3	50·97	26·83	22·20	100·00

W.A. HOSPITALS 1974

Patients Discharged by Operation Group and Type of Hospital

Code of Surgical Procedures	Operation Groups	Discharges														State Total
		Metropolitan								Country						
		Teaching		Private		Government		Total		Private		Govt. & Board		Total		
		Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	
001–049	Nervous System	1 945	56·15	1 074	31·00	100	2·89	3 119	90·04	25	0·72	320	9·24	345	9·96	3 464
061–089	Endocrine System	523	65·62	179	22·46	42	5·27	744	93·35	9	1·13	44	5·52	53	6·65	797
100–189	Eye	1 684	43·46	1 684	43·46	168	4·34	3 536	91·25	54	1·39	286	7·38	340	8·77	3 876
190–249	Ear, Nose and Throat	3 101	25·79	5 948	49·48	1 369	11·39	10 418	86·66	212	1·76	1 395	11·60	1 607	13·37	12 025
250–299	Upper Alimentary Tract	1 135	20·13	1 537	27·26	770	13·66	3 442	61·05	547	9·70	1 648	29·23	2 195	38·93	5 637
300–349	Thorax	1 236	93·85	12	0·91	3	0·23	1 251	94·99	2	0·15	64	4·86	66	5·01	1 317
380–389	Breast	365	17·39	1 148	54·69	291	13·86	1 804	85·95	69	3·29	222	10·58	291	13·86	2 095
400–559	Abdomen	6 028	37·49	4 853	30·18	2 119	13·18	13 000	80·85	399	2·48	2 677	16·65	3 076	19·13	16 076
560–669	Urinary and Male Genital Organs	3 408	35·09	3 472	35·75	1 015	10·45	7 895	81·28	125	1·29	1 707	17·57	1 832	18·86	9 727
671–739	Female Genital Tract	3 177	17·28	6 251	34·00	4 903	26·67	14 331	77·95	399	2·17	3 645	19·83	4 044	22·00	18 375
740–779	Obstetric	3 420	40·11	2 935	34·42	1 258	14·75	7 613	89·29	52	0·61	903	10·59	955	11·20	8 568
780–879	Orthopaedic	6 119	46·71	3 866	29·51	838	6·40	10 823	82·62	160	1·22	2 110	16·11	2 270	17·33	13 093
880–909	Peripheral Circulation	832	34·17	945	38·81	262	10·76	2 039	83·74	58	2·38	338	13·88	396	16·26	2 435
910–939	Skin and Subcutaneous Tissue	3 781	33·13	3 438	30·12	1 547	13·55	8 766	76·80	282	2·47	2 362	20·69	2 644	23·16	11 410
940–999	Other Surgical Procedures	4 999	80·49	571	9·19	130	2·09	5 700	91·77	112	1·80	401	6·46	513	8·26	6 213
	Total All Operations	41 753	36·27	37 913	32·95	14 815	12·87	94 481	82·10	2 505	2·18	18 122	15·75	20 627	17·92	115 108

W.A. HOSPITALS

Accidents, Poisoning and Violence—Discharged During 1974

I.C.D. Categories	External Cause	Number of Cases		Number Days in Hospital		Average Number Days in Hospital		Per cent. of Total Bed Days		Outcome			
		Male	Female	Male	Female	Male	Female	Male	Female	Dis-charged	Trans-ferred	Died	Deaths per 1,000 Separations
800–807	Railway Accidents	31	2	754	18	24·3	9·0	0·28	0·01	33	....	....	....
810–819	Motor Vehicle Traffic Accidents	3 443	1 430	36 128	14 050	10·5	9·8	13·29	5·17	4 533	261	79	16
820–823	Motor Vehicle Non-Traffic Accidents	174	25	1 965	152	11·3	6·1	0·72	0·06	194	3	2	10
825–827	Other Road Vehicle Accidents	288	187	1 321	969	4·6	5·2	0·49	0·36	463	12	....	....
830–838	Water Transport Accidents	59	11	618	59	10·5	5·4	0·22	0·02	69	1	....	....
840–845	Air and Space Transport Accidents	17	2	124	19	7·3	9·5	0·05	0·01	19	....	....	....
850–859	Accidental Poisoning by Drugs and Medicaments	312	351	1 726	2 233	5·5	6·4	0·64	0·82	650	11	2	3
860–869	Accidental Poisoning by Other Solid and Liquid Substances	409	204	930	434	2·3	2·1	0·34	0·16	607	5	1	1
870–877	Accidental Poisoning by Gases and Vapours	46	4	369	4	8·0	1·0	0·14	0·00	49	1	....	....
880–887	Accidental Falls	4 086	3 022	33 461	35 492	8·2	11·7	12·31	13·06	6 663	356	89	12
890–899	Accidents Caused by Fires and Flames	575	257	6 718	3 128	11·7	12·2	2·47	1·15	794	30	8	9
900–909	Accidents Due to Natural and Environmental Factors	499	308	1 768	1 075	3·5	3·5	0·65	0·40	800	6	1	1
910–929	Other Accidents	7 558	2 921	37 888	14 429	5·0	4·9	13·94	5·31	10 242	210	27	2
930–936	Surgical and Medical Complications and Misadventures	1 145	1 153	19 296	17 706	16·9	15·4	7·10	6·52	2 174	60	64	27
940–949	Late Effects of Accidental Injury	1 103	537	14 748	8 699	13·4	16·2	5·43	3·20	1 583	43	14	8
950–959	Suicide and Self-inflicted Injury	506	1 044	2 449	5 235	4·8	5·0	0·90	1·93	1 430	102	18	11
960–969	Homicide and Injury Purposely Inflicted by Other Persons	739	313	4 085	1 624	5·5	5·2	1·50	0·60	1 022	24	6	5
970–978	Legal Intervention	....	....	....	....	....	....	....	....	....	....	....	....
980–989	Injury Undetermined Whether Accidentally or Purposely Inflicted	134	319	655	1 166	4·9	3·7	0·24	0·43	423	27	3	6
990–999	Injury Resulting from Operations of War	13	....	251	....	19·3	....	0·09	....	13	....	....	....
	Total	21 137	12 090	165 254	106 492	7·8	8·8	60·80	39·20				
	Grand Total, Male and Female	33227		271746		8·2		100·00		31 761	1 152	314	9

W.A. HOSPITAL DISCHARGES, 1974.

External Cause and Nature of Injury of Accidents, Poisoning and Violence

			NATURE OF INJURY																																									
I.C.D. Code	External Cause of Injury	Patients Age and Hospital Stay	Fracture of Spine, Skull and Trunk		Fracture of Upper Limb		Fracture of Lower Limb		Dislocation Without Fracture		Sprains and Strains of Joints and Muscles		Intra-cranial Injury Without Skull Fracture		Internal Injury of Chest, Abdomen and Pelvis		Laceration and Open Wound of Head, Neck and Trunk		Laceration and Open Wound of Upper Limb		Laceration and Open Wound of Lower Limb		Laceration and Open Wound of Multiple Location		Superficial Injury		Contusion and Crushing With Intact Skin		Effects of Foreign Body		Burn		Injury to Nerves and Spinal Cord		Adverse Effect of Medicinal Agents		Adverse Effect of Non-Medicinal Substances		Other Adverse Effects		Total	
			N800–N809		N810–N819		N820–N829		N830–N839		N840–N848		N850–N854		N860–N869		N870–N879		N880–N887		N890–N897		N900–N907		N910–N918		N920–N929		N930–N939		N940–N949		N950–N959		N960–N979		N980–N989		N990–N999			
			M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
E800–807	Railway Accidents	Patients	5				6				2		4	1	1				4		3					1	1												5		31	2
		Avge. Age	30				39				20		26	71	81				37		23					68	44												42		35	70
		Avge. Stay	48·0				31·7				15·0		1·5	1·0	21·0				1·5		74·0					17·0	3·0												7·2		24·3	9·0
E810–819	Motor Vehicle Traffic Accidents	Patients	428	184	200	72	450	122	67	19	67	59	952	380	109	56	280	112	62	14	66	30	82	26	106	46	110	91	1		20	4	15	6			1	1	410	198	3 426	1 420
		Avge. Age	31	34	26	38	28	34	32	34	31	30	25	25	29	32	26	29	27	31	26	30	28	34	23	22	25	35	22		30	34	30	44			3	6	25	28	27	30
		Avge. Stay	17·6	20·4	8·0	8·3	27·5	31·8	9·7	10·5	6·0	4·8	5·9	3·7	15·7	15·8	4·5	5·1	11·0	2·9	8·0	11·9	4·4	6·5	3·7	4·2	4·2	3·5	1·0		29·9	36·3	6·7	5·3			1·0	1·0	3·8	4·1	10·3	9·6
E820–823	Motor Vehicle Non-Traffic Accidents	Patients	20	2	19	2	32	1	5		3		39	7	8	3	2		4		11	1	1		5	1	11	2			1		3						7	6	171	28
		Avge. Age	24	14	21	16	20	15	36		26		20	9	24	8	30		27		14	34	23		12	2	22	3			19		28						32	28	22	15
		Avge. Stay	35·0	19·5	3·5	4·0	14·1	8·0	15·4		2·0		6·9	3·9	7·0	4·3	1·5		2·8		9·8	7·0	3·0		4·8	2·0	11·5	1·5			2·0		3·7						5·4	7·5	11·4	6·1
E825–827	Other Road Vehicle Accidents	Patients	15	14	41	29	31	12	4	3	1	2	101	77	10	1	15	4	4	3	22	12	4		5	4	10	8					2						20	18	285	187
		Avge. Age	21	19	14	16	18	18	13	12	25	18	13	12	18	6	14	9	19	12	9	8	15		13	12	15	25					20						22	14	15	14
		Avge. Stay	12·0	8·0	4·0	2·9	10·0	8·6	2·5	2·3	1·0	2·0	2·4	1·7	9·5	6·0	2·7	1·8	1·3	3·7	6·0	30·2	3·3		3·6	2·3	2·8	8·5					10·5						2·6	3·7	4·6	5·2
E830–838	Water Transport Accidents	Patients	4		7	6	11	1	6	1	2		7	2					7				1				4				5								4	1	58	11
		Avge. Age	31		25	56	37	60	27	44	21		35	52					35				18				44				40								28	11	33	50
		Avge. Stay	10·0		6·9	2·7	31·3	24·0	5·0	8·0	11·0		2·0	1·5					1·4				2·0				3·5				13·0								3·0	8·0	10·4	5·4
E840–845	Air and Space Transport Accidents	Patients	1	1	2		7				3		2						1																	1					16	2
		Avge. Age	22	26	29		28				33		36						16																	19					29	23
		Avge. Stay	9·0	1·8	10·5		9·3				5·7		2·0						6·0																	1·0					7·6	9·5
E850–859	Accidental Poisoning by Drugs and Medicaments	Patients																																	262	274	2	1			264	275
		Avge. Age																																	12	15	8	2			12	15
		Avge. Stay																																	3·6	2·7	1·5	2·0			3·6	2·7
E860–869	Accidental Poisoning by Other Solid and Liquid Substances	Patients																													1				2		401	200		1	404	201
		Avge. Age																													36				2		5	4		3	5	4
		Avge. Stay																													1·0				1·0		2·3	2·1		4·0	2·3	2·1
E870–877	Accidental Poisoning by Gases and Vapours	Patients																																			44	4			44	4
		Avge. Age																																			28	29			28	29
		Avge. Stay																																			8·3	1·0			8·3	1·0
E880–887	Accidental Falls	Patients	702	293	1 360	1 185	1 045	931	107	49	84	34	375	201	37	9	60	48	8	7	9	23	7	2	13	9	58	61					3	1	1				132	103	1 001	2 956
		Avge. Age	34	42	21	35	37	58	32	50	30	47	23	21	33	45	34	34	36	69	31	67	34	71	41	31	40	65					25	26	53				29	44	29	44
		Avge. Stay	6·6	9·8	3·5	4·0	17·1	24·6	4·3	4·1	7·5	7·4	2·5	2·6	7·0	4·2	2·6	5·0	4·4	12·4	10·9	21·0	4·9	6·5	6·9	7·6	5·6	10·1					2·7	30·0	18·0				5·7	6·5	7·8	11·4
E890–899	Accidents Caused by Fires and Flames	Patients															2				1										567	253					2				572	263
		Avge. Age															28				19										22	24					50				22	34
		Avge. Stay															2·0				3·0										11·7	11·4					10·5				11·0	11·4
E900–909	Accidents Due to Natural and Environmental Factors	Patients	12	9	4	17	11	5	3		1		10	10	2	2	23	18	2	5	14	8	6	2	37	30	4	4	1			1	1				292	153	64	39	437	303
		Avge. Age	30	24	19	13	33	23	39		32		18	16	24	10	8	6	23	41	23	56	16	45	16	20	29	27	26			0·0	12				21	27	32	44	22	27
		Avge. Stay	27·8	5·2	1·8	2·0	10·7	4·0	3·7		8·0		1·8	2·4	1·5	8·0	3·2	1·6	5·5	3·2	4·5	19·1	1·2	14·5	3·1	3·2	5·5	5·0	6·0			3·0	4·0				1·4	1·8	5·5	6·7	3·2	3·4
E910	Accidental Drowning and Submersion	Patients									2		2	2	1		1				1																		42	13	49	15
		Avge. Age									39		22	17	18		17				22																		7	8	10	9
		Avge. Stay									14·0		3·0	6·0	5·0		2·0				16·0																		1·4	1·7	2·3	2·3
E911–912	Inhalation and Ingestion of Food and Other Objects	Patients																											61	56											61	56
		Avge. Age																											27	47											27	47
		Avge. Stay																											1·9	1·8											1·9	1·8
E914–915	Foreign Body Accidentally Entering Eye or Orifice	Patients													5	4	9	1							5	2		1	200	177	1						1				221	185
		Avge. Age													37	64	37	4							28	6		11	22	19	20						56				23	20
		Avge. Stay													9·4	5·3	11·7	1·0							14·0	1·5		3·0	2·7	2·1	5·0						4·0				3·5	2·3
E920	Accidents Caused by Cutting or Piercing Instruments	Patients			28	2	6	2		1			8	3	2	1	463	215	994	232	565	275	105	59	21	4	2		1				16	8					2	2	2 213	830
		Avge. Age			40	41	24	34		27			42	23	2	6	25	25	30	27	20	22	27	31	28	24	19		0·0				27	28					37	12	26	25
		Avge. Stay			3·9	1·5	5·8	14·0		4·0			2·1	1·0	4·0	1·0	3·5	3·6	3·2	2·5	4·7	5·3	6·5	5·5	4·1	7·3	2·5		8·0				2·6	11·9					4·5	1·5	3·8	4·1
E913 E916–919 E921–929	Other Accidents	Patients	183	33	147	22	108	24	329	111	405	198	1 069	439	86	22	150	41	274	74	61	18	16	7	132	54	549	190	4		459	147	32	7			1		916	400	4 920	1 787
		Avge. Age	26	21	28	19	28	33	29	32	34	36	19	17	28	22	24	19	25	19	20	38	27	33	22	30	27	31	23		21	14	32	41			56		34	37	26	27
		Avge. Stay	7·0	5·2	5·1	8·3	16·8	15·2	5·6	5·9	6·0	6·0	2·8	2·5	10·2	8·9	6·8	3·7	4·1	5·7	11·7	13·4	3·5	3·1	3·6	4·2	5·1	5·7	5·0		8·7	9·1	4·5	7·0			4·0		5·6	6·8	5·5	5·5
E930–936	Surgical and Medical Complications and Misadventures	Patients		1	1		1	3							2	13	1					2			1					2	1	1			97	127	1	3	495	457	600	609
		Avge. Age		21	23		64	58							52	25	46					47			25					22	26	2			51	53	48	47	35	33	38	37
		Avge. Stay		15·0	10·0		14·0	30·7							19·5	6·0	17·0					3·0			3·0					3·0	19·0	19·0			8·0	8·8	3·0	14·0	7·9	8·9	8·0	8·9
E940–949	Late Effects of Accidental Injury	Patients	95	19	74	33	88	33	2	1	15	16	30	13	14	9	23	14	44	13	16	2			2	1	11	1	2	1	35	30	31	15		3	2		284	191	768	395
		Avge. Age	30	33	30	36	34	51	32	41	37	36	26	29	35	18	28	21	27	22	25	16			35	16	38	24	23	46	19	12	36	28		64	27		47	52	36	41
		Avge. Stay	10·0	13·9	6·6	8·0	21·5	20·5	11·0	1·0	8·3	4·6	9·9	43·8	4·4	9·6	8·6	4·3	7·2	3·3	18·9	5·1			2·5	2·0	11·3	5·0	13·0	3·0	20·4	15·2	4·6	26·0		10·3	1·5		13·6	16·2	12·4	15·5
E950–959	Suicide and Self-Inflicted Injury	Patients	5	2		1	1	1					2		2	2	6	4	27	27	1	1	1	2		1			4	1	1	1	1		384	953	38	18	11	7	484	1 021
		Avge. Age	43	42		40	56	16					37		49	37	34	34	27	33	43	12	60	27		19			35	15	18	69	21		32	30	36	34	24	23	32	30
		Avge. Stay	16·4	35·5		15·0	18·0	1·0					4·0		14·0	11·0	18·2	16·3	6·2	4·0	2·0	3·0	7·0	1·5		21·0			7·5	3·0	1·0	24·0	2·0		3·7	4·4	5·7	4·7	6·0	7·6	4·5	4·6
E960–969	Homicide and Injury Purposely Inflicted by Other Persons	Patients	181	37	20	11	11	9	4	1	2		234	66	24	5	96	42	18	7	8	2	11	12	8	5	41	48				1		3				1	58	55	716	305
		Avge. Age	33	32	35	36	41	34	49	41	26		31	33	31	33	34	32	24	39	35	43	36	27	40	28	27	30				23		24				27	31	27	32	31
		Avge. Stay	6·6	9·2	6·1	6·5	17·5	29·1	4·5	4·0	6·0		4·3	1·8	12·2	8·0	4·2	4·9	4·8	5·0	4·6	10·0	3·3	6·3	3·1	3·4	4·0	2·9				17·0		6·3				1·0	4·7	3·9	5·4	5·2
E970–978	Legal Intervention	Patients																																								
		Avge. Age																																								
		Avge. Stay																																								
E980–989	Injury Undetermined Whether Accidentally or Purposely Inflicted	Patients	3	1									3	1	1	2	2	3	2		1	1	1					1					3		82	265	19	31		1	117	306
		Avge. Age	20	34									48	37	40	24	41	29	58		20	24	44					60					34		32	30	26	31		23	32	30
		Avge. Stay	21·7	5·0									8·0	24·0	16·0	4·5	4·5	1·3	1·5		3·0	1·0	2·0					6·0					1·7		2·7	3·1	3·6	3·0		14·0	3·6	3·2
E990–999	Injury Resulting from Operations of War	Patients									1						1		1		3		1										1								8	
		Avge. Age									27						80		74		54		44										61								56	
		Avge. Stay									2·0						12·0		6·0		50·0		18·0										5·0								24·1	
TOTALS	All External Causes	Patients	1 654	596	1 903	1 380	1 808	1 144	527	186	588	309	2 838	1 202	304	129	1 134	528	1 452	382	782	375	236	110	335	158	801	407	274	237	1 091	438	108	40	828	1 623	803	412	2 450	1 492	19 916	11 148
		Avge. Age	31	37	22	34	34	54	30	37	33	36	23	21	30	29	26	26	29	27	21	27	28	32	23	24	28	37	23	25	22	20	31	32	28	30	14	16	33	36	27	32
		Avge. Stay	10·4	12·9	4·3	4·4	19·7	24·8	5·9	5·8	6·3	5·8	4·0	3·3	11·4	10·9	4·4	3·1	3·9	3·1	6·4	8·5	5·2	5·8	3·9	4·3	5·1	5·5	2·7	2·1	11·0	11·2	4·5	15·4	4·1	4·3	2·5	2·3	6·5	8·1	7·0	7·7

HOSPITAL DISCHARGES 1974.

Perth Statistical Division

Hospital Name	Type	Number of Beds	Number of Discharges	Per Cent of Metropolitan Discharges
Armadale/Kelmscott	3	71	4 059	2·60
Attadale	2	57	2 802	1·80
Avro	2	25	1 218	0·78
Bentley	3	70	3 555	2·28
Bethesda	2	56	2 615	1·68
Devonleigh	3	35	2 054	1·32
Fremantle	1	337	12 608	8·09
Hawthorn	3	29	2 202	1·41
Hillcrest	2	15	34	0·02
Kalamunda (opened 4/11/74)	3	64	286	0·18
Kalamunda Spa (closed 4/11/74)	2	48	1 024	0·66
King Edward Memorial	1	250	8 405	5·39
Kwinana	3	10	301	0·19
*Kwinana (closed 30/6/74)	2	12	321	0·21
Lesmurdie (closed 4/11/74)	2	17	196	0·13
Lucknow	2	22	317	0·20
Morna	2	21	1 262	0·81
Mount	3	95	1 938	1·24
*Mount (closed 30/6/74)	2	93	1 927	1·24
Oats Street	2	38	1 796	1·15
Osborne Park	3	94	4 583	2·94
Princess Margaret	1	297	14 297	9·17
Repatriation	4	419	6 440	4·13
Royal Perth	1	936	28 331	18·18
St. Annes	2	232	7 752	4·97
St. Johns, Belmont	2	116	4 110	2·64
St. Johns, Subiaco	2	388	13 122	8·42
St. Josephs, Bicton	2	37	1 706	1·09
Sir Charles Gairdner	1	473	11 156	7·16
South Perth Community	2	67	3 164	2·03
Stirling	2	80	5 340	3·43
Swan Districts	3	113	5 575	3·58
Woodside	3	40	1 309	0·84
Wooroloo	3	8	67	0·04
Total	....	4 665	155 872	100·00

(1) Teaching Hospital
(2) Private Hospitals
(3) Government and Board Hospital
(4) Mental Health Services
(5) Commonwealth Repatriation

*Hospitals not Government controlled

PERTH STATISTICAL DIVISION 1974.

HOSPITALISED NON-METROPOLITAN PATIENTS BY STATISTICAL DIVISION OF RESIDENCE AND TYPE OF HOSPITAL

Statistical Division of Residence	Discharges				
	Number	Percent			
		Total	Teaching	Other Govt. and Board	Private
South West	4 284	18·54	10·72	2·78	5·04
Southern Agricultural	1 893	17·54	9·11	1·83	6·60
Central Agricultural	2 961	17·15	8·35	2·01	6·79
Northern Agricultural	2 830	20·83	9·76	3·31	7·76
Eastern Goldfields	2 253	14·93	8·82	1·72	4·39
Central	493	30·70	24·84	1·25	4·61
North West	595	16·91	9·86	1·99	5·06
Pilbara	1 263	14·40	8·27	1·32	4·81
Kimberley	497	8·45	6·59	0·53	1·32

DISCHARGES FROM W.A. HOSPITALS BY STATISTICAL DIVISION OF RESIDENCE 1974

Statistical Division	Number	Rate/1 000 Population
Perth	141 675	185
South West	23 106	293
Southern Agricultural	10 792	243
Central Agricultural	17 265	336
Northern Agricultural	13 589	307
Eastern Goldfields	15 095	334
Central	1 606	369
North West	3 518	256†
Pilbara	8 769	
Kimberley	5 881	378
Metropolitan (Perth)	141 675	186
Rural (All Others)	99 621	300
Total State*	241 296	220

* Does not inlcude 2 407 discharges for which Geographical location was inaccurate or incomplete. Total discharges for State in 1974 were 243 703.

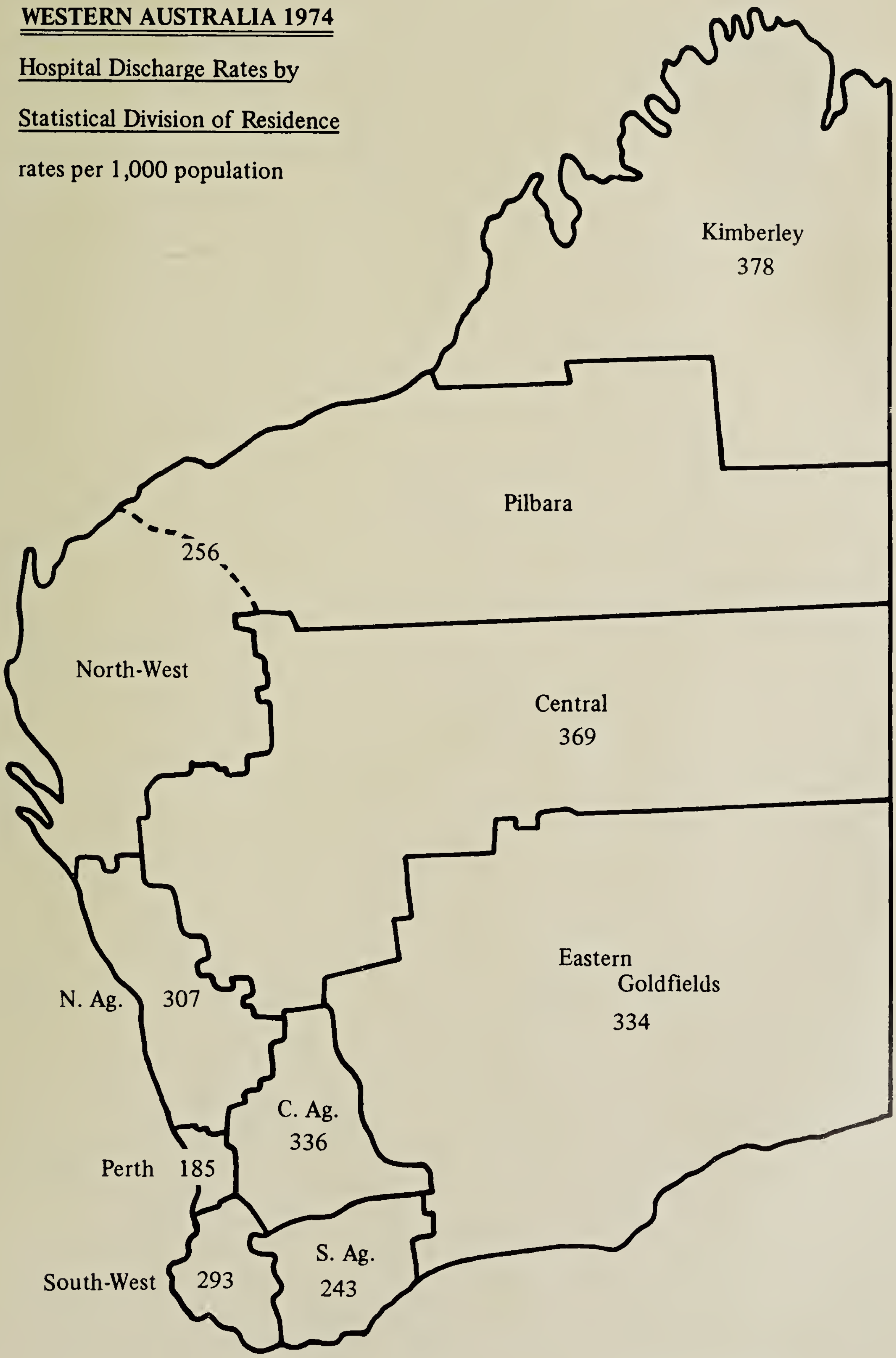
† Separate population data for North West and Pilbara Divisions no longer available from Bureau of Statistics.

WESTERN AUSTRALIA 1974

Hospital Discharge Rates by

Statistical Division of Residence

rates per 1,000 population



TOTAL STATE: 220

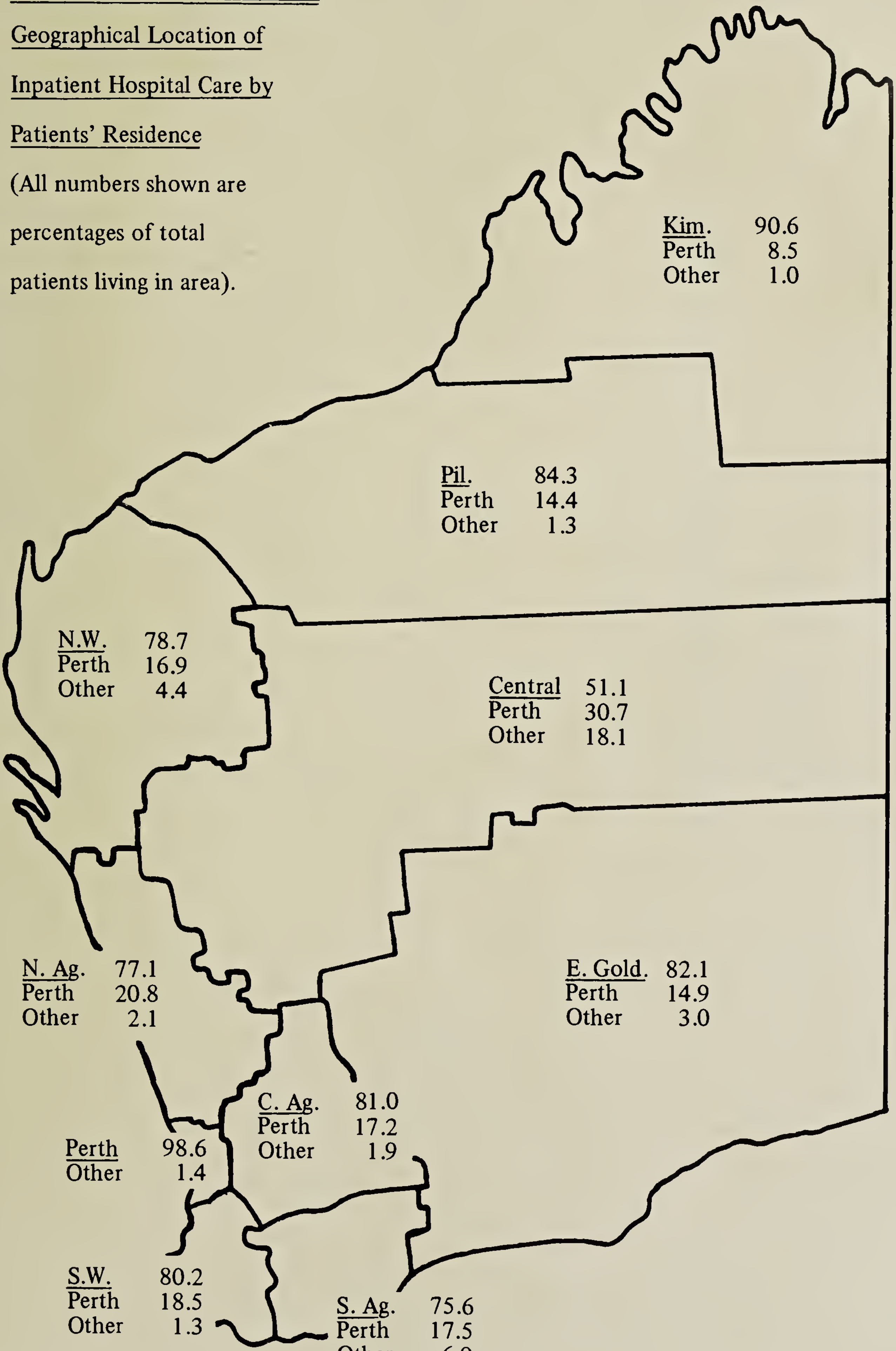
GEOGRAPHICAL LOCATION OF IN-PATIENT HOSPITAL CARE
BY PATIENTS RESIDENCE, W.A.—1974

Statistical Division of Residence	Statistical Division of Hospitalization		
	Home	Perth	Other
	%	%	%
Perth	....	98·56	1·44
South West	80·21	18·54	1·25
Southern Agricultural	75·66	17·54	6·90
Central Agricultural	80·96	17·15	1·89
Northern Agricultural	77·07	20·83	2·10
Eastern Goldfields....	82·07	14·93	3·00
Central Division	51·18	30·70	18·12
North West	78·65	16·91	4·44
Pilbara	84·32	14·40	1·28
Kimberley	90·58	8·45	0·97

WESTERN AUSTRALIA 1974

Geographical Location of Inpatient Hospital Care by Patients' Residence

(All numbers shown are percentages of total patients living in area).



Appendix XVIII

Derby Leprosarium

Admissions and Discharges for 1974

Month	Admissions							Discharges									Inmates Remaining in Leprosarium		
	Male			Female			Total Male and Female	Male				Female				Total Male and Female			
	Ad-mitted	Re-Ad-mitted	Total	Ad-mitted	Re-Ad-mitted	Total		Dis-charged	De-ceased	Ab-sconded	Total	Dis-charged	De-ceased	Ab-sconded	Total		Male	Female	Total Male and Female
January	1	1	2	1	1	2	4	....	....	....	....	....	....	....	....	....	50	31	81
February	1	1	2	....	1	1	3	3	1	....	4	1	....	....	1	5	48	31	79
March	1	....	1	....	1	1	2	8	....	....	8	3	....	....	3	11	41	29	70
April	1	....	1	1	....	1	2	....	....	....	....	....	....	....	....	....	42	30	72
May	....	2	2	....	....	....	2	2	....	....	2	2	....	....	2	4	42	28	70
June	....	....	....	....	....	....	....	5	....	....	5	1	....	....	1	6	37	27	64
July	....	1	1	1	....	1	2	3	....	....	3	1	....	....	1	4	35	27	62
August	....	....	....	....	1	1	1	2	....	....	2	1	....	1	2	4	33	26	59
September	3	....	3	....	....	....	3	3	....	....	3	3	....	....	3	6	33	23	56
October	....	....	....	....	....	....	....	2	2	....	4	3	....	....	3	7	29	20	49
November	....	....	....	....	....	....	....	....	....	....	....	1	....	....	1	1	29	19	48
December	....	....	....	1	....	1	1	2	....	....	2	2	....	....	2	4	27	18	45
Total	7	5	12	4	4	8	20	30	3	....	33	18	....	1	19	52	....	....	....

Appendix XIX

Incidence and Mortality of Notifiable Diseases

Diseases Notifiable	1971		1972		1973		1974	
	Cases Notified	Deaths	Cases Notified	Deaths	Cases Notified	Deaths	Cases Notified	Deaths
Amoebiasis	2	....	2	....	2	....	2	....
Ancylostomiasis	C.O.S. 1	....	2	....	....	....	3	....
Anthrax	....	....	....	....	....	....	....	....
Bacillary Dysentery	149	2	145	2	212	....	165	....
Bilharziasis	1	....	....	....	....	....	2	....
Brucellosis	1	....	....	....	1	....	2	....
Cholera	....	....	....	....	....	....	....	....
Diphtheria	1	....	2	....	5	1	....	....
Encephalitis Lethargic	....	....	....	1	....	....	....	2
Filariasis	C.O.S. 1	....	....	....	1	....	C.O.S. 1	....
Homologous Serum Jaundice	....	N.A.	....	N.A.	....	....	....	....
Hydatid	2	....	....	....	1	....	....	1
Infective Hepatitis	291	3	163	5	165	3	247	1
Leprosy	25	2	17	1	12	2	17	3
Leptospirosis	....	....	2	....	3	....	1	....
Malaria	C.O.S. 19	....	C.O.S. 14	....	C.O.S. 9	....	C.O.S. 4	....
Meningococcal Infection	5	2	3	2	7	2	2	5
Ornithosis	....	....	....	....	....	....	....	....
Paratyphoid	1	....	....	....	1	....	....	....
Plague	....	....	....	....	....	....	....	....
Poliomyelitis	....	1	4	2	....	2	....	....
Puerperal Fever	2	1	....	....	1	....	....	....
Relapsing Fever	....	....	....	....	....	....	....	....
Salmonella Infection (A)	224	5	123	5	311	2	149	1
Scarlet Fever	18	....	22	....	10	....	8	....
Small pox	....	....	....	....	....	....	....	....
Tetanus	4	1	....	....	....	....	....	....
Tuberculosis	143	21	155	11	146*	13	137	10
Typhus Fever	....	....	1	....	....	....	....	....
Typhoid Fever	1	....	2	....	....	....	1	....
Yellow Fever	....	....	....	....	....	....	....	....

N.A. = Not available.

C.O.S. = Contracted out of State.

(A) Other salmonella infection.

* Includes three transfers from other States.

Appendix XX

Stillbirth and Infant Mortality Rates W.A. (a)

Year	Total Births Including Stillbirths	Stillbirth Rates	Under One Week	Mortality Rates Under One Month	One Month and Under One Year	Total Mortality Rates Under One Year	Total Mortality Rates Under One Year Including Stillbirths
1948	13,197	20·5	16·9	18·7	8·4	25·0	45·5
1949	13,779	19·4	16·2	19·0	6·8	25·9	45·3
1950	14,468	16·6	16·2	18·0	8·6	26·7	43·3
1951	15,091	19·7	16·2	19·7	8·5	28·2	47·9
1952	15,697	18·1	15·5	17·7	6·9	24·5	42·6
1953	16,130	16·6	13·4	16·2	7·3	23·4	40·0
1954	16,198	16·7	14·2	15·8	6·4	22·2	38·9
1955	16,862	14·2	13·3	15·8	6·3	22·1	36·3
1956	17,142	13·2	13·0	15·7	6·7	22·4	35·6
1957	17,172	14·4	13·6	14·9	5·9	20·8	35·2
1958	16,956	13·3	12·8	14·2	7·1	21·2	34·5
1959	17,336	13·0	12·3	13·6	6·3	19·9	32·9
1960	17,152	13·2	13·9	15·7	5·7	21·3	34·5
1961	17,318	13·9	10·3	12·6	6·8	19·4	33·3
1962	17,267	11·8	12·6	14·3	7·7	22·0	33·8
1963	17,468	10·2	12·3	14·7	5·5	20·2	30·4
1964	16,855	10·1	11·8	12·9	6·6	19·5	29·5
1965	16,367	11·1	12·8	15·0	6·5	21·4	32·5
1966	17,368	10·0	12·4	14·4	5·4	19·7	29·8
1967	18,211	10·3	11·4	13·0	4·3	17·2	27·6
1968	19,784	12·3	13·3	14·7	5·5	20·1	32·3
1969	21,004	11·9	13·9	15·3	6·2	21·6	33·5
1970	21,913	13·5	12·4	14·4	6·6	20·9	34·4
1971	24,537	12·1	11·0	12·4	6·5	18·9	31·1
1972	22,435	11·5	9·2	10·3	5·2	15·5	27·0
1973	20,780	13·0	10·9	12·7	6·3	19·0	32·0
1974	20 481	13·4	9·1	10·6	5·3	16·0	29·3

(a) For 1965 and earlier years, exclude Full-blood Aborigines. From 1966, Aborigines are included. In above table, all rates are calculated in deaths per 1,000 total births, including stillbirths.

For 1968 and later years, the term " stillbirth " refers to a child of at least 20 weeks gestation, or birth weight of at least 400 grams not born alive. Prior to 1968, " stillbirth " referred to a child of at least 28 weeks gestation, not born alive

STILLBIRTH AND INFANT MORTALITY RATES (a) (b)

Area of Registration	Total Births Including Stillbirths (c)	Stillbirth Rates (c)	Infant Mortality Rates				Total Mortality Infant Deaths and Stillbirths
			Under One Week	Under One Month	One Month and Under One Year	Total Under One Year	
1973—							
New Zealand	61 285	9·1	N.A.	N.A.	N.A.	16·1	25·2
1974—							
Western Australia	20 481	13·4	9·1	10·6	5·3	16·0	29·3
New South Wales	87 205	11·9	N.A.	12·1	4·3	16·4	28·3
Victoria	66 988	11·7	9·2	10·7	4·0	14·8	26·5
Queensland	38 236	10·0	10·0	11·4	4·2	15·6	25·6
Tasmania	7 480	11·0	9·1	10·0	6·4	16·4	27·4
South Australia	20 417	11·6	10·0	11·2	4·1	15·3	26·8

(a) Rates calculated per 1 000 total births, including still births.

(b) Infant mortality refers to deaths which occur from birth to one year of age.

(c) The term "stillbirth" refers to a child, not born alive, of at least 20 weeks' gestation, or at least 400 grammes weight for all Australian States and of at least 28 weeks gestation for New Zealand.

N.A. Denotes not available.

INFANT MORTALITY (*a*)

Year	Births	Infant Mortality Per 1,000 Live Births
1948	12,931	25·6
1949	13,511	26·4
1950	14,228	27·1
1951	14,794	28·7
1952	15,413	24·9
1953	15,862	23·8
1954	15,928	22·5
1955	16,623	22·4
1956	16,916	22·7
1957	16,924	21·1
1958	16,731	21·5
1959	17,111	20·2
1960	16,926	21·6
1961	17,078	19·7
1962	17,064	22·3
1963	17,290	20·4
1964	16,685	19·7
1965	16,186	21·7
1966	17,194	19·9
1967	18,023	17·4
1968	19,541	20·4
1969	20,754	21·8
1970	21,618	21·2
1971	24,239	19·1
1972	22,177	15·7
1973	20 510	19·2
1974	20 207	16·2

(*a*) For 1965 and earlier years, excludes full-blood Aborigines. From 1966 Aborigines are included.

Infant mortality defined as deaths occurring from birth to one year of age.

COMPARISON OF INFANT MORTALITY AND GENERAL DEATH RATE

Place	Infant Mortality Rate (*a*)					General Death Rate				
	1970	1971	1972	1973	1974	1970	1971	1972	1973	1974 (*c*)
New Zealand (*b*)	16·7	16·5	15·6	16·2	N.A.	8·81	8·49	8·50	8·50	8·30
Western Australia	21·2	19·1	15·7	19·2	16·2	7·59	7·57	7·04	7·31	7·09
New South Wales	19·7	17·4	17·5	17·1	16·6	9·62	9·04	8·91	8·72	9·24
Victoria	14·5	14·7	14·4	14·3	14·9	8·79	8·72	8·40	8·53	8·47
Queensland	17·9	19·2	17·8	17·5	15·7	9·50	8·93	8·86	8·82	9·21
South Australia	16·2	15·9	16·8	18·7	15·5	8·75	8·23	8·21	8·18	8·38
Tasmania	14·2	13·7	16·2	13·5	16·2	8·18	8·42	8·21	8·43	8·68

N.A. Denotes not available.

(*a*) Infant deaths per thousand live births. (Deaths under one year of age.)

(*b*) Includes Maoris.

(*c*) Preliminary

Appendix XXI

Western Australia Stillbirth and Birth Rates (*a*)

Year	Mean Population Year Ended 31st December	Live Births		Stillbirths (*b*)	
		Number	Rate per 1,000 Mean Population	Number	Rate per 1,000 Total Births
1952	600,615	15,413	25·66	284	18·09
1953	621,034	15,862	25·54	268	16·62
1954	639,963	15,928	24·89	270	16·67
1955	657,323	16,623	25·29	239	15·17
1956	674,459	16,916	25·08	226	13·18
1957	687,448	16,924	24·62	248	14·44
1958	699,915	16,731	23·90	225	13·27
1959	711,737	17,111	24·04	225	12·98
1960	722,900	16,926	23·41	226	13·18
1961	737,596	17,078	23·15	240	13·86
1962	766,205	17,064	22·58	203	11·76
1963	788,457	17,290	22·23	178	10·19
1964	808,300	16,685	20·93	170	10·09
1965	826,481	16,186	19·85	181	11·06
1966	849,112	17,194	20·25	174	10·02
1967	879,815	18,023	20·48	188	10·32
1968	915,757	19,541	21·34	243	12·28
1969	955,660	20,754	21·72	250	11·90
1970	994,201	21,618	21·74	295	13·46
1971	1,031,614	24,239	23·50	298	12·15
1972	1,056,508	22,177	20·99	258	11·50
1973	1 072 680	20 510	19·12	270	12·99
1974	1 097 600 (*c*)	20 207	18·41 (*c*)	274	13·38

(*a*) Mean population : Figures prior to 1962 exclude full-blood Aborigines.
Births : For 1965 and earlier years figures exclude full-blood Aborigines ; from 1966 Aborigines are included.
A line drawn across the columns indicates a break in the series.
Birth rates from 1966 have been revised in accordance with the final results of the 1971 Census.

(*b*) From 1st January, 1968, the term " stillbirth " for registration purposes, refers to a child of at least 20 weeks gestation, not born alive. Previously it was restricted to cases where the gestation period was at least 28 weeks.

(*c*) Preliminary.

Appendix XXII

MATERNAL MORTALITY

Period	Average Annual Live Births	Average Annual Maternal Deaths	Average Annual Rate
1901–1905	6,681	28·0	4·19
1906–1910	7,691	43·4	5·64
1911–1915	8,844	39·4	4·46
1916–1920	7,726	41·4	5·36
1921–1925	8,056	34·2	4·25
1926–1930	8,748	46·8	5·35
1931–1935	8,062	35·4	4·39
1936–1940	8,877	32·4	3·65
1941–1945	10,408	24·4	2·34
1946–1950	13,130	21·4	1·63
1951–1955	15,724	13·8	0·88
1956–1960	16,922	8·2	0·48
1961–1965	16,861	5·0	0·30
1966–1970	19,426	4·0	0·21

Year	Live Births	Deaths from									
		Puerperal Septicaemia		Other Puerperal Infection		Abortion		All Other Complications of Pregnancy and of the Puerperal State		All Complications of Pregnancy and the Puerperal State	
		No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate
1948	12,981	2	0·15	4	0·31	1	0·08	13	1·00	20	1·55
1949	13,511	....	....	2	0·15	3	0·22	11	0·81	16	1·18
1950	14,288	....	....	2	0·14	1	0·07	10	0·70	13	0·91
1951	14,794	....	....	2	0·14	3	0·20	11	0·74	16	1·08
1952	15,413	....	....	3	0·19	3	0·19	12	0·78	18	1·17
1953	15,862	....	....	....	....	1	0·06	8	0·50	9	0·57
1954	15,928	....	....	....	....	5	0·31	7	0·44	12	0·75
1955	16,623	....	....	....	....	1	0·06	13	0·78	14	0·84
1956	16,916	....	....	....	....	2	0·12	7	0·41	9	0·53
1957	16,924	....	....	....	....	3	0·18	8	0·47	11	0·65
1958	16,731	....	....	....	....	1	0·06	7	0·42	8	0·48
1959	17,111	....	....	....	....	1	0·06	4	0·23	5	0·29
1960	16,926	1	0·06	....	....	3	0·18	4	0·24	8	0·47
1961	17,078	....	....	....	....	2	0·12	5	0·29	7	0·41
1962	17,064	....	....	....	....	1	0·06	4	0·23	5	0·29
1963	17,290	....	....	....	....	1	0·06	3	0·17	4	0·23
1964	16,685	....	....	....	....	3	0·18	3	0·18	6	0·36
1965	16,186	....	....	....	....	1	0·06	2	0·12	3	0·19
1966	17,194	....	....	....	....	1	0·06	6	0·35	7	0·41
1967	18,023	....	....	....	....	....	....	2	0·11	2	0·11
1968	19,541	....	....	....	....	....	....	5	0·26	5	0·26
1969	20,754	....	....	....	....	....	....	3	0·14	3	0·14
1970	21,618	....	....	....	....	....	....	3	0·14	3	0·14
1971	24,239	1	0·04	....	....	....	....	2	0·08	3	0·12
1972	22 177	....	....	....		1	0·05	2	0·09	3	0·15
1973	20 510	....	....	....	....	....	....	5	0·24	5	0·24
1974	20 207	1	0·05	....	....	....	....	1	0·05	2	0·10

(All rates per thousand live births.)

MATERNAL MORTALITY RATES PER THOUSAND LIVE BIRTHS

Place	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974
Western Australia (*a*)	0·19	0·41	0·11	0·26	0·14	0·14	0·12	0·14	0·24	0·10
New Zealand (*b*)	0·17	0·32	0·17	0·24	0·20	0·22	0·22	0·14	N.A.	N.A.
New South Wales (*a*)	0·32	0·28	0·24	0·34	0·17	0·25	0·15	0·10	0·08	N.A.
Victoria (*a*)	0·36	0·25	0·20	0·20	0·14	0·25	0·23	0·10	0·04	0·03
Queensland (*a*)	0·30	0·40	0·26	0·31	0·22	0·21	0·25	0·15	0·29	0·16
Tasmania (*a*)	0·40	0·27	0·27	0·48	0·12	0·37	Nil	0·13	Nil	0·14
South Australia (*a*)	0·34	0·20	0·20	0·14	0·32	0·31	0·22	0·18	0·10	0·20

(*a*) For 1965 and earlier years exclude Full-blood Aborigines. In 1966, and subsequent years, Aborigines are included.

(*b*) Non-Maori.

N.A. = Not available.

Appendix XXIII

Expenditure and Revenue for the Calendar Year 1974

Expenditure for Year Ended 31/12/74

		$
Salaries including administration and other health services		1 936 359
Pay Roll Tax		201 149
Administration Expenses		142 189
Printing and Stationery		51 994
Government Employees Housing Rent		22 254
Child Health Services—	$	
Salaries	1 259 714	
Generally	130 310	
		1 390 024
Dental Health Services —		
Salaries	820 734	
Generally	150 901	
Dental Bursaries	21 748	
Mobile Clinics	20 456	
North West Clinics	115 200	
Other Clinics	97 504	
		1 226 543
Epidemiology—		
Salaries	110 570	
Generally	32 328	
		142 898
Community Health—		
Salaries	1 277 156	
Generally	2 168 011	
		3 445 167
Laboratories—		
Salaries	2 142 817	
Laboratory Cadets	10 991	
Generally	1 089 941	
		3 243 749
Other Health Services—		
Pharmaceutical Services	11 923	
Medical Illustrations	8 966	
Health Services Centre	40 988	
Health Surveyors and Inspectors	40 113	
Pest Control	4 296	
Library and Technical Information Service	14 041	
Occupational Health	18 516	
Clean Air Act	48 544	
Radioactive Substances	250	
Statistics	18 799	
V.D. Control	38 176	
Poliomyelitis	38 600	
Poison Information Centre	....	
Fly Eradication	....	
Infectious Diseases	6 235	
Thalidomide Babies	....	
Chiropody Service	7 405	
Social Workers Subsidies	....	
Guthrie Testing—P.M.H.	4 617	
Paraplegic—R.P.H. Recoup	....	
Abatement of Noise	448	
Geriatrics	12 864	
Food and Nutrition	715	
Paramedical Service—Aged Persons Homes	....	
Miners X-rays	38 819	
Post Graduate Dental Comm.	3 000	
Ord River Ecology Study	11 946	
Country Diabetic Clinic	....	
		369 261
T.B. Control—		
Salaries	357 542	
Pay Roll Tax	23 670	
Super-Employers Share	13 771	
Generally	173 180	
Recoup—Sir Charles Gairdner	550 866	
		1 119 029
GRAND TOTAL		$13 290 616

N.B. The base year cost of Tuberculosis Control ($155 702) which is the States contribution and payable from the Health Vote, has not been shown under the C.R.F. expenditure items, nor has it been included in the Revenue statement under the Tuberculosis item.

Revenue for Year Ended 31/12/74.

	$	$
Licenses—		
Anatomy	251	
Fumigation	17	
Maternity Home	599	
Poisons Act	8 984	
Radioactive Substances Act	956	
Optical Dispensers	30	
Private Hospitals	3 500	
Clean Air Act	10 217	
		24 554
Fees—		
Fish Inspection	6 697	
Meat Inspection	223 320	
Building Inspection	7 082	
Health Inspection Scheme—Goldfields	....	
Perth Medical Officers	3 454	
Pest Control Collections	1 741	
Pesticides Registration	3 630	
Photographic Charges	191	
Septic Tank Plans	46 356	
		292 471
Miscellaneous		
Other	74 227	
Staff Rents	8 588	
Sale of Biscuits	1 279	
Miners X-ray Recoups	9 803	
Commonwealth Grant	4 264 127	
		4 358 024
Laboratories—		
Fees and Services		782 544
Dental—		
Fees		211 113
Tuberculosis Control—		
Maintenance Recoup from Commonwealth	611 365	
Capital Recoup from Commonwealth	....	
Health Vote—Base Year Transfer	155 702	
Administration	47 890	
		814 957
GRAND TOTAL		$6 483 663

By Authority: WILLIAM C. BROWN, Government Printer